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BLUE JAY

A JOURNAL OF NATURAL HISTORY AND CONSERVATION
FOR SASKATCHEWAN AND ADJACENT REGIONS

XXV, No. 2 Regina, Saskatchewan June, 1967

ose Photo by Robert R. Taylor

Published quarterly by the
SASKATCHEWAN NATURAL HISTORY SOCIETY
Regina, Saskatchewan

Editorial

Although it is stimulating to travel to new places and to see new plants and animals, it is surprising how many interesting observations of nature we can make right at home, going about our daily round of activities. That thought came to my mind this spring when I had an unusually close view of a Sharp-shinned Hawk feeding, an event we seldom witness since these little accipiters only pass through Regina in migration.

On April 1, I had a quick, but good, look at a Sharp-shinned Hawk that perched briefly on a tree in the Legislative Grounds. The appearance of the hawk on this early date interested me, for Margaret Belcher's *Birds of Regina* (1961) gives April 3 as the earliest spring arrival date, stating that its spring arrival follows that of smaller birds. This year some Tree Sparrows and Slate-colored Juncos had already returned by this time, but they were not numerous and I had been wondering about their survival, for the last two days of March had been unusually cold with considerable fresh snow and strong winds.

The following day was bright and clear, but the temperature did not go above 10°F. When I put my car in the garage at 5:00 p.m. and walked toward the house, I was alerted by a small flock of House Sparrows in the bushes which were uttering loud alarm notes. Suddenly around the corner of the garage from the direction of Liz Roley's feeding station a little hawk came flying and the sparrows quickly dropped into the centre of the bushes. The hawk as it passed between me and the bushes was less than 10 feet away, and I could see clearly the dark bluish back and wings and the rather long notched tail of the Sharp-shinned. It was carrying a sparrow and it stopped on the back fence, a mesh one with a steel bar along the top. The sparrows were still in the bushes and they became noisy again, with some moving restlessly about scarcely a yard from the hawk. I stood still on the path for a long time. The hawk was not 50 feet from me, but the view was broken by an intervening lilac bush.

Ten minutes later the hawk moved to a new perch on the fence, where stems of a **Clematis** covered the steel bar and gave him a more natural perch. I could now see him better, for there were no longer any bushes between us. He was wary and still not in a hurry, but soon he started to pluck his prey and begin his supper. When a big Labrador dog came along the alley less than eight feet from the bird, the hawk stayed where it was and soon resumed feeding. This prompted me to move closer, to within 30 feet. There I could see every detail of the striking adult plumage of the Sharp-shin, even noticing two or three small spots of white on the dark blue back. I could have watched this handsome and fierce-looking little hawk till he finished his dinner, but a neighbour across the alley came out to his garage nearby; as he opened the large steel door, the hawk left his dinner and flew up into an ash tree and soon on again. On the back fence there remained only the head of a female House Sparrow, proving that our little guest had had a good meal on our busy city lot.

Observations of interesting things going on around us have been the strength of our *Blue Jay* magazine, and it is always gratifying to have new contributors sending records of unusual things they have seen, such as the commensal feeding of the gull and the Peregrine Falcon reported in this issue.

George F. Ledingham.

THE BLUE JAY

Published quarterly by the Saskatchewan Natural History Society
Founded in 1942 by Isabel M. Priestly

Authorized as second class mail and for payment of postage in cash
P.O. Department, Ottawa

Vol. XXV, No. 2 JUNE, 1967 Pages 53-104

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ECOLOGY OF THE GREAT SANDHILLS AND CYPRESS HILLS PLATEAU

by **Jan Looman,** Research Station, Canada Department of Agriculture, Swift Current

[On June 10-11, 1967 the Saskatchewan Natural History Society will hold its annual Summer Meeting at Swift Current. The following short article describes the area to which field trips have been planned.]

The Great Sandhills extend east from the Saskatchewan-Alberta border to approximately north of Tompkins. In Alberta a smaller dune area, the Middle Sandhills, is separated from the Great Sandhills by the South Saskatchewan River and a narrow strip of loamy soils. East of the Great Sandhills, small dune areas of the same formation extend as far east as Highway No. 4 north of Swift Current.

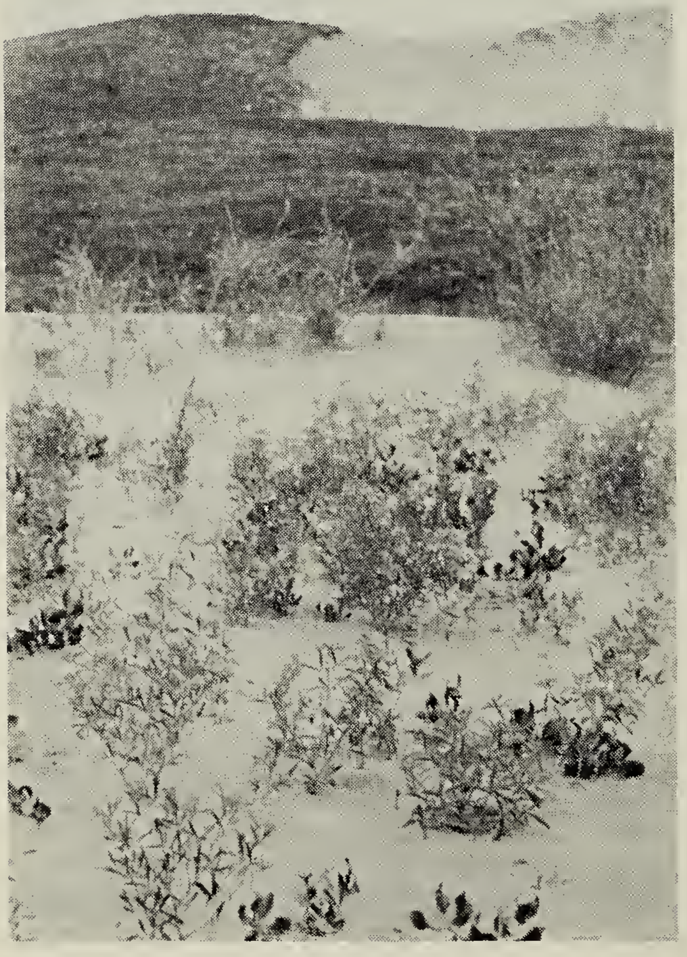


Figure 1. Bare dunes and fairly dense vegetation exist within a short distance of each other in the Great Sandhills.

The sand which forms the dunes is very fine and the absence of even small pebbles shows the aeolian character of the formation. The sand is of glacial origin; repeated reworking by wind and water have caused its present homogeneous texture. Though very dry and often very hot at the surface, the dune landscape is relatively well supplied with sub-surface water. Even in the middle of summer the sand is moist at a shallow depth, usually within the upper foot. A remarkable phenomenon in the dune landscape is the existence of almost bare dunes and fairly dense vegetation within a short distance of each other (Figure 1).

The dune landscape may be visualized as being at first a smooth layer of sand over loam or clay. The sand lets water percolate through very readily, but this water does not penetrate easily into the heavier-textured loam or clay. As a result, grasses and herbs, shrubs and trees establish readily. Where the loam or clay underlies the sand at a shallow depth, and relatively little water is held the grasses and herbs will predominate. Shrubs and trees establish in the deeper sand layers.

In periods of drought the areas occupied by grassland become desiccated; the upper layers of the sand start drifting and the sand piles up against shrubs, forming "embryonic" dunes. This process is repeated over and over again, and because several shrubs have the ability to keep growing above the sand the embryonic dunes become higher and higher, eventually becoming hills.

Obviously, this process is a very effective force in the selection of species especially equipped to survive in so rigorous an environment. In an active dune landscape several species ccur which are rarely found elsehere, partly because they are the nly ones capable of survival in this nvironment, but also partly because his "specialization" has made them oorly equipped for competition in ore amenable environments. Most of e species well adapted for survival the dunes are perennials, many of hich have very extensive rootstocks. specially the rootstocks of *Psoralea nceolata* (lance-leaved psoralea) an reach astounding lengths. Several ther species, of which *Oryzopsis hyenoides* (Indian rice grass) is an xample, have the ability to root at e nodes and thus produce a kind of vertical" rootstock. The annuals, like *upinus pusillus* (small lupine) and *ygodesmia rostrata* (annual skelenweed), have seedlings which can ush up through an inch or more of and, become buried, and push their ay through once more.

The sand is very low in nutrients, ut the high permeability of even very eep sand-layers results in the acculation of large amounts of nutrients low-lying areas. As a result, the une landscape can become very varied, with the sparsely vegetated dunes, dry and poor sand flats, and the richer, more moist flats each supporting its own typical vegetation. In especially favourable locations shrubs and trees flourish, including *Amelanchier alnifolia* (saskatoon) and *Prunus melanocarpa* (black-fruited chokecherry), and offer food and shelter for the White-tailed Deer, as well as many species of birds.

The fauna includes the Pronghorn, probably the Kangaroo Rat, and many species of birds. However, not being a zoologist, this writer prefers to avoid entering into details. Apparently, the zoology of the Great Sandhills is relatively poorly known.

The Cypress Hills Escarpment is a strong contrast to the Sandhills. Whereas the substrate in the Sandhills is of a highly uniform texture, and of approximately uniform age, in the escarpment there are coarse-textured materials (Figure 2) and the successive deposits that are exposed span a period of some 60,000,000 years. The oldest exposed layers belong to the Whitemud and Frenchman formations, dating back to the

igure 2. Coarse-textured substrate of the Cypress Hills Escarpment.

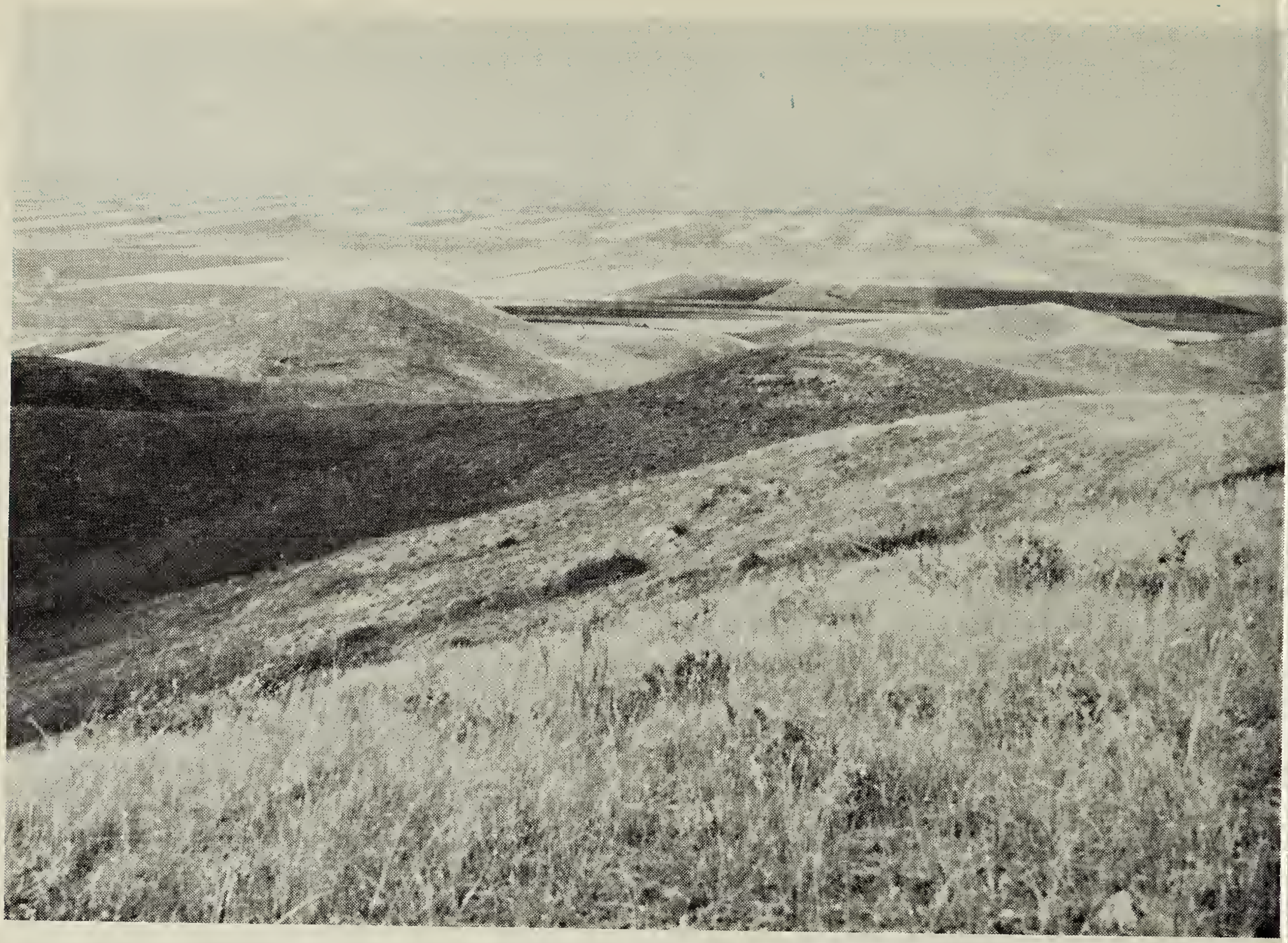


Figure 3. Panoramic view of the farming areas north of the Cypress Hills Escarpment.

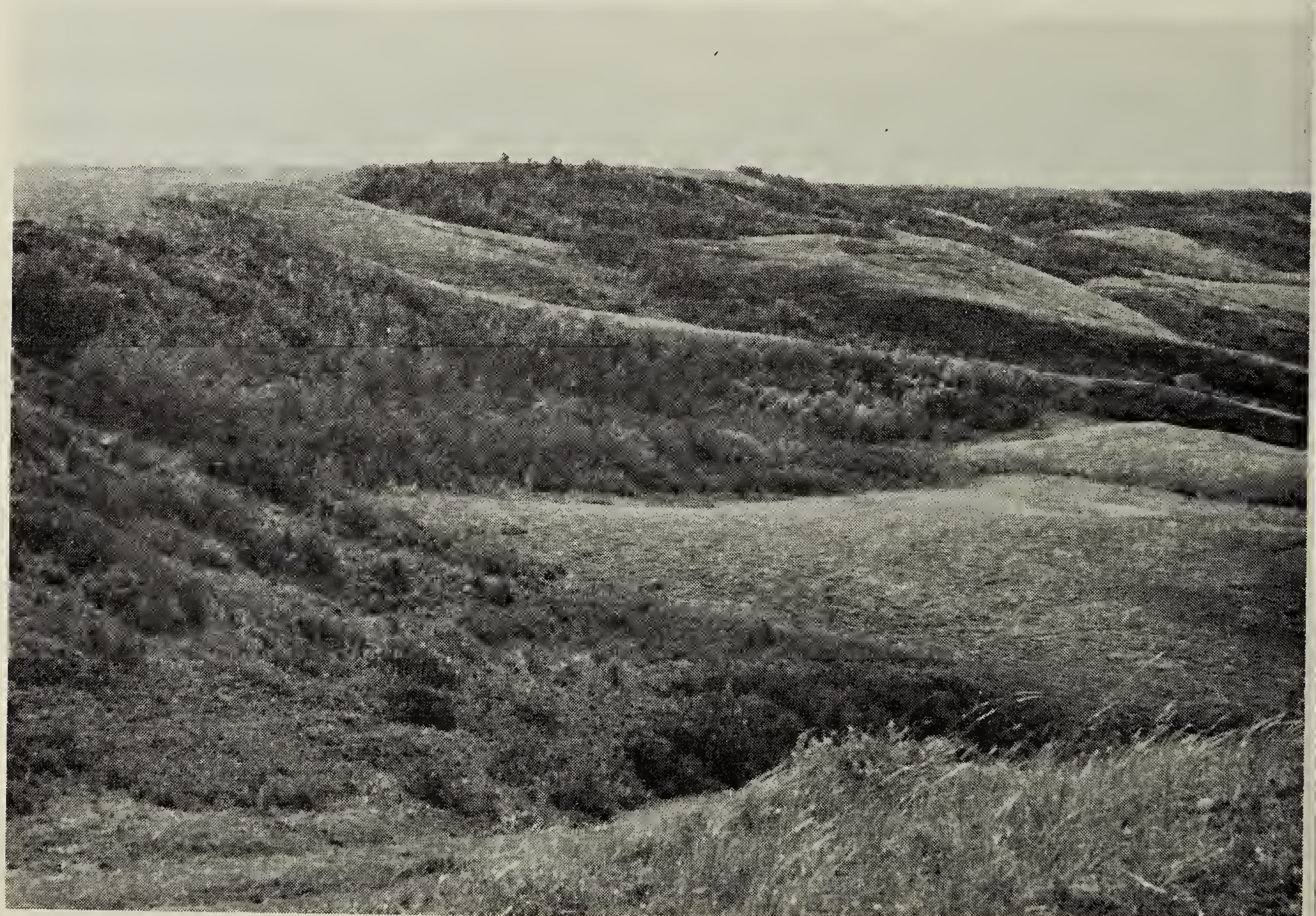


Figure 4. Trees and shrubs in the coulees of the Cypress Hills Escarpment.

Jpper Cretaceous. The Frenchman leposits are mostly of the clay-phase, ecognizable by its "popcorn" strucure when dry. Overlying the Frenchnan are the Ravenscrag formation of 'aleocene age and the Cypress Hills ormation, dating back to the Oligoene. In many places the glacial deleposits overlying the Cypress Hills ormation have been eroded away, eaving the older deposits exposed. Vhere the often very gravelly Cyoress Hills formation is exposed exremely dry habitats are thus created.

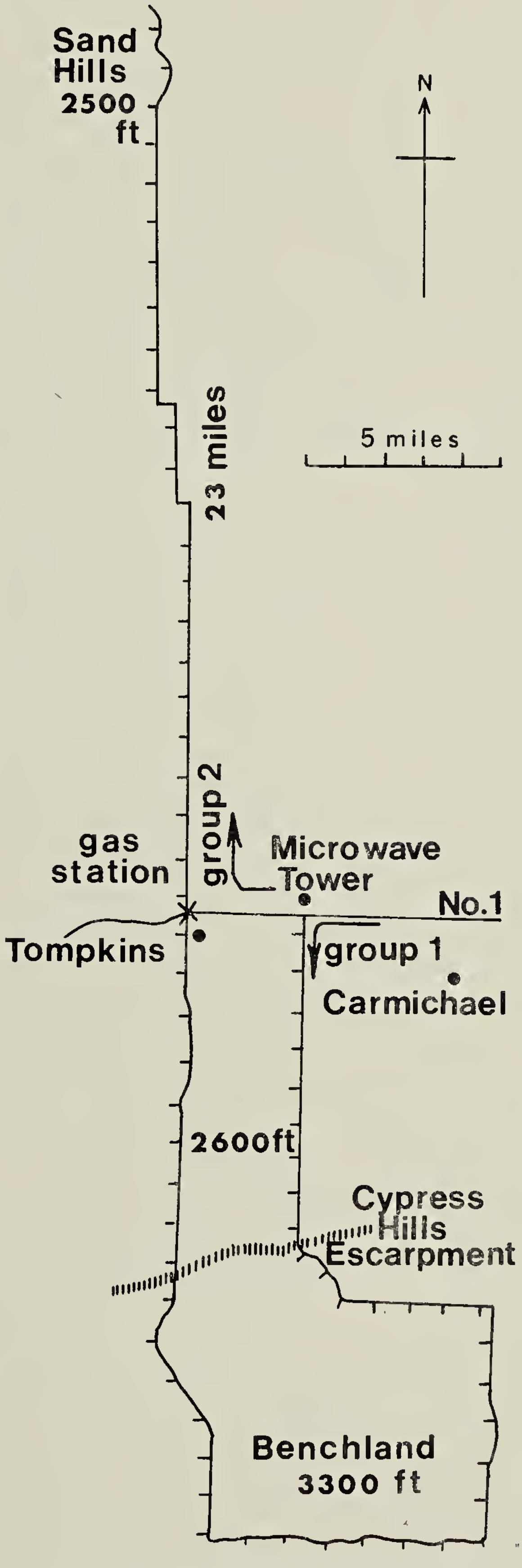
The Whitemud and Frenchman fornations have been the source of many Dinosaur fossils in the southern part f the escarpment at Eastend; the Ravenscrag and Eastend formations lo not have Dinosaur remains, but nave yielded mammalian fossils.

The escarpment rises about 850 feet above the plains to the north and gives a beautiful panoramic view of the farming areas (Figure 3). At the same time the altitude of about 3,300 feet brings the Stipa prairie of the plains in contact with the montane Fescue grassland. As a result, several sub-montane species are found in the grassland. Among others are *Sedum stenopetalum* (narrow-petaled stonecrop), *Potentilla fruticosa* (shrubby cinquefoil), *Delphinium bicolor* (low larkspur), and *Arenaria lithophila* (rocky-ground sandwort).

In eroded areas several rather rare plant species occur, most of which are "cushion" plants, well adapted to the harsh environment: *Astragalus caespitosus* (tufted milk-vetch), *Townsendia sericea* (low townsendia), *Erigeron radicatus* (dwarf fleabane) and *E. compositus* (compound fleabane) are found, usually together with the more common species like *Eriogonum flavum* (yellow umbrella plant) and *Astragalus triphyllus* (cushion milkvetch). This plant community is typical of the highly calcareous and extremely harsh habitat, but at the same time one of the most colorful.

In the many coulees, shrubs and trees are plentiful (Figure 4), but while the grassland is very different from that in the Sandhills, most of the species of shrubs and trees here are the same as those found in the Sandhills.

The fauna of the area cannot be described in detail, though it may be mentioned that Pronghorn and White-tailed Deer are in the area, as well as several birds not seen in the Sandhills.



Summer Meeting field trips, June 10-11, 1967

THE UPLAND PLOVER AND ITS STATUS IN RELATION TO ENVIRONMENTAL CONDITIONS AND SITUATIONS, PAST AND PRESENT

by G. J. Mitchell, University of Saskatchewan, Regina

During the last 100 years many naturalists have observed and shown interest in the Upland Plover *(Bartramia longicauda)*, but until quite recently this interest was mainly concerned with recording distribution, migration phenology and bird numbers. Several detailed investigations during the last 25 years, however, have added materially to our knowledge of Upland Plover biology and ecology and have permitted a better understanding of this species' requirements and the reasons for its general decline in numbers in North America during the early decades of the present century.

Mobility and Size of Home Range

That the Upland Plover is a highly mobile bird is shown not only in its seasonal migrations, but also in its daily movements during all seasons. Estimates of migrations approximately 14,000 miles have been made by Beck (1949) for Upland Plovers in Pennsylvania. A review of the many published local bird lists and regional studies in the United States and Canada, and reports by Hudson (1920, 1922), and Wetmore (1926) on Upland Plover wintering areas in Argentina and Uruguay, serve to emphasize the extensiveness of these migrations and provide pertinent information on the distributional and migrational patterns characteristic of this species.

The relationship between the Upland Plover's high mobility and the size of its breeding season home range has been studied by Buss and Hawkins (1939), and Buss (1951) in Wisconsin and the Yukon, respectively. In the Yukon the mobility of the species resulted in large individual breeding ranges where habitats for nest-making, loafing and feeding were provided. Individual home range, although variable, was up to two miles in diameter, and many areas that appeared to have the necessary combinations of habitats were unused because they were too small and did not meet the requirements of these highly mobile birds.

Upland Plover breeding ground requirements include a breeding territory or nesting site which is actively defended by the breeding pair, plus loafing and feeding grounds which are community areas where breeding pairs of Upland Plovers tolerate one another. These pairs do, however, show great variations in their breeding ground requirements and tolerances towards others of their species, and this results in variable plover densities per unit of suitable summer breeding habitat. Breeding pair densities ranging from one pair per 1.5 to 15 acres in Wisconsin, and one pair per 53-106 acres in Pennsylvania, to one pair per 380 acres in the Yukon have been recorded by Buss and Hawkins (1939), Beck (1949) and Buss (1951) respectively. Birds examined in the Yukon averaged lighter in weight than those studied in Wisconsin, suggesting a relatively scarcer food supply on the more northerly grounds. Perhaps the high mobility of Upland Plovers on the northern breeding grounds is a necessary prerequisite for obtaining sufficient amounts of food and conversely, if this species were not extremely mobile on those breeding grounds it could not occupy that range because of food deficiencies.

Although the relationship between mobility and size of winter home range is not well understood, Hudson (1920) reports that the Upland Plover has a wide and uniform distribution over all that portion of the pampas in South America used by these birds in winter. It appears that pland Plovers in winter are not ommunal but that each bird requires certain "living space" or range to he exclusion of others.

Habitat Requirements

The breeding season study made in Wisconsin showed that Upland Plovers sually built their nests in quack rass *(Agropyron repens)*, blue grass *Poa pratensis* and *P. canadensis)*, nd canary grass *(Phalaris* sp.*)* withn grassy hay meadows or tussock astures situated in areas that were bout one-half pasture and one-half orn, small grains and hay. The loafng grounds were areas of pasture with low tussocks, prairie meadows with low-growing vegetation, or hay elds with open patches. It was found hat heavy grazing, early grazing, tanding water, or burning and mowng caused fields to become unattracive and unacceptable to Upland Plovers.

On the Yukon study area five pairs f Upland Plovers nested in a meadow f bluegrass *(Poa glauca)*, pasture age *(Artemisia frigida)*, and anemnes *(Anemone* sp.*)* which was surounded by willow *(Salix glauca)* white spruce *(Picea glauca)*, various hrubs and poplars *(Populus tremuides* and *P. balsamifera)*. Upland Plovers also occupied a recently burned tract of land that had supported solid stand of white spruce 15 years previously. The dominant successional vegetation present during this study was fireweed *(Epilobium angustifolium)*, weeds, shrubs and grasses nterspersed with spruce, snags and ther debris. Other apparently suitble habitats above timberline were not utilized by plovers early in spring because of the presence of snow and ce at these higher elevations at that ime.

Barrows (1912) states that Upland Plovers in Michigan often select nestng sites on wet ground, and in such nstances the nests are placed upon he higher and drier portions of the meadow. In Alberta, Rowan (1926) bserved Upland Plover nests in sandy areas that supported only sparse vegetation.

Bent (1929) states that the Upland Plover, a characteristic species of the prairies and open grassy fields, began to disappear as the prairies were modified because of agricultural demands. He found that burning of prairie vegetation seriously affected these birds, but noticed that some Upland Plovers appeared to be adapting to new situations and were nesting in cultivated fields containing cereal crops. In Connecticut and Nebraska, Bates (1907) found that Upland Plovers during fall migration were feeding extensively on waste wheat and rye and in Texas, Stevenson (1942) reports that these birds are regularly seen on cultivated lands. Buss and Hawkins (1939) found Upland Plovers nesting in alfalfa and sweet clover in Wisconsin.

Analysing all these habitat preferences data, it is apparent that the Upland Plover is a bird of the open climax prairie and is closely associated with areas that support short, graminaceous vegetation. The physiognomy of such cover is duplicated on agricultural lands used as pasture and hay meadows, and these areas too are utilized to some extent by these birds. The two exceptions to this association between Upland Plovers and low-growing grasses are reported by Buss (1951) and Murie (1946) who found these birds using tracts of land which supported an early-successional stage vegetative community of fireweed, shrubs, grasses and forbs in the Yukon, and an association of grasses, sedges and rather tall and scattered willows in Alaska, respectively. Considering the amount of litter and debris on the Yukon area, and the relatively tall aspect of the vegetation on both tracts, these areas were probably sub-optimal for breeding.

More research is necessary to reveal whether it is the shape and height of these short grasses that is attractive to Upland Plovers during the breeding season, or whether the insect fauna associated with this vegetation is the important factor. Inasmuch as plovers often leave nesting areas to feed on adjacent sites, it is probably vegetation physiognomy that is significant. In the Yukon study, two adult plovers on a territory with four juveniles were usually located in the shortest grasses, alerted for territorial intrusions by other plovers, or attacks by raptorial birds and only rarely frequented the taller grasses on the territory. It would appear, then, that the height and structure of the vegetational community on the territory is closely related to the value of the area to Upland Plovers. Removing prairie grasses by burning, or reducing grass height by early or heavy grazing or mowing makes otherwise suitable nesting habitat unacceptable. Hudson (1920) states that the removal of large amounts of native, coarse grasses on winter range in Argentina at the turn of the century adversely affected Upland Plovers.

Nesting

In the Wisconsin study several situations of Upland Plover nest placement and density prevailed. Although nesting territories were usually grouped, this grouping was not consistent from year to year even in similar cover types in the same fields. One year, nest placement strongly suggested a colonial type of nesting. The following year there appeared to be no grouping of nests in this same field. The former situation, where nest density was high, could be construed to represent communal nesting as Buss and Hawkins (1939)) have suggested. Coues (1874) reports that on the prairies the Upland Plovers gather into what almost appears to be colonies.

In the Yukon study, there was no strong evidence that the Upland Plover was a communal or colonial nester. Three pairs of Upland Plovers, nesting near the centre of the study area, left the majority of the area to two other pairs of plovers. Defence of a summer home range did not result in a more or less even amount of ground space per pair as might be expected with other species of ground-nesting birds exhibiting territorial defense.

There appears to be no order or regularity with respect to placement of nests or densities of nests on any one breeding ground in any one year. In some situations Upland Plovers appear to be colonial nesters, whereas in others they are solitary nesters.

Although the reasons for this variation in nest-placement pattern are not clear, one might speculate that the pattern of nest establishment is essentially a complex of small territories crowded upon the available nesting ground. Such a pattern might result in each territory having approximately equal area. It might also be postulated that if an Upland Plover returns to the same breeding ground each year, it might tend to return to precisely the same territory it occupied or began life upon some previous year, and that if there was no significant mortality in the Upland Plover population and if the breeding range size remained constant, the nesting territories would become progressively smaller each year. If mortality did occur to a bird subsequent to its departure from its territory in the fall, this bird's territory the following summer would no longer be inviolate and could, presumably, be occupied by another Upland Plover.

Taking the above considerations one step further, suppose that if the young of any one year are governed by some stimulus to return the following year to the exact territories in which they were hatched, it would conceivably result in local concentrations of "family-line groups" on the breeding range. Being unable to occupy the exact territory, *per se*, each of these juvenile birds might establish its territory adjacent to the territory it was familiar with the year previous. In fact, each bird might acquire a portion of the territory it knew from the previous year and set up a defensive pattern that would guarantee retention of at least a portion of last year's territory.

Finally, since an appreciable segment of the Upland Plover population

Saskatchewan Museum of Natural History Photo

Upland Plover

s lost each year, many birds would be prevented from returning to their ancestral breeding territories and this might account for gaps between territories on the breeding range. These gaps would not be real inasmuch as birds representing "family-line groups" concentrated on small territories would perhaps utilize a portion of these unattended territories. The overall pattern under all of these assumptions would be as follows:

(1) Local concentrations of territories containing nests, in which each territory is small and occupied by a pair of Upland Plovers, one or both birds of which was hatched on or very close to this same territory at some previous time.

(2) an area between these concentrated territories that is not occupied by many or any birds.

These low density areas might be occupied by remnants of one-time larger family-line groups, or in part by breeding birds from other family groups that might have spread out laterally from their centres of territory concentration because of the absence of active territorial defense offered by occupants of these low-density territories.

The essential pattern of nest placement and position of territories then would be one of sporadic concentrations of small territories with the intervening ground space occupied by individual pairs (representing remnants of family-line groups) whose territories were much larger in size.

Population Status Past and Present

Many authors have reflected on the large-scale reductions in Upland Plover numbers in the late nineteenth and early twentieth centuries. Forbush (1912) states that market hunters turned to the Upland Plover about 1880 when the supply of Passenger Pigeons became almost exhausted. In that period, large crews of gunners persistently followed the plovers throughout their breeding range and slaughtered countless numbers of them for shipment to metropolitan centres and an awaiting market. A marked reduction in Upland Plovers in Minnesota is cited by Roberts (1919) who writes that in the 50-year period after 1870, plovers were reduced from countless thousands to a point nearing extinction on their summer breeding range. He attributed this population decline to excessive hunting pressures and the existence of a table market for Upland Plovers in the spring.

Bent (1929) also believes that market hunting greatly reduced Upland Plover numbers late in the nineteenth century but he feels that a reduction in summer range habitat was also responsible for these population changes.

In South America, the history of utilization of this bird is similar. Wetmore (1926) and Bent (1929) state that market hunting of Upland Plovers on the winter grounds resulted in drastic population reductions early in the twentieth century.

More recently some authors have recorded increases in Upland Plover numbers and densities at various regions within the summer breeding range. Beck (1949), who recorded a reduction of Upland Plovers from approximately 300 in 1906 to only 15 in 1923 in one region, believes that the plover status on that study area is now stabilized. In New Jersey, Urner and Storer (1949) report that Upland Plovers are increasing in numbers during the fall migrations. Further evidence of local increases of this species has been shown by Terrill (1951) for Ontario.

It can be concluded that prior to the American Civil War, when human densities were relatively low throughout the breeding range of the Upland Plover and there was no widespread and organized market hunting of this species, these birds had presumably reached optimal densities concomitant with existing range conditions. In fact, there were even local increases in Upland Plover densities during this period as a result of land-use changes. In this regard, Beck (1949) stated that Upland Plovers probably first arrived in some parts of Pennsylvania after the trees were cleared from the broad farm lands. Later in the nineteenth century, market hunting was in vogue and excessive numbers of Upland Plovers were shot for a market demanding a steady supply of these birds for the table.

Radical changes in land-use policy and conversion of much primeval prairie land undoubtedly had an effect on Upland Plover densities. These effects, though probably mostly disadvantageous, may be, at least locally, of benefit to these birds. McAtee and Beal (1912) state that the Upland Plover has a close relationship to agriculture, utilizing as food those insects found on croplands and consuming vegetable foods that are mainly harmful weed seeds.

It appears that market hunting was the major factor responsible for the decline in Upland Plover numbers late in the nineteenth and early in the twentieth centuries. The loss of breeding range also contributed to this marked decrease. The combination of these two factors made heavy inroads on the population of the Upland Plover, a bird species that has been shown by Buss (1951) to have a very low reproductive potential.

The Migratory Birds Convention Act of 1916 put an end to legal, organized market hunting and presumably allowed the population of Upland Plovers slowly to approach a level that is consistent with present day breeding range conditions.

It is to be expected that even more Upland Plover breeding habitat will be destroyed as the conversion of climax prairie to cropland is intensified. On the other hand, some habitat might be created within blocks of climax boreal forest as farm establishment results in the removal of trees and the creation of pasture land. Any trends that exist for Upland Plovers to utilize advantageously the products and by-products of agriculture will most certainly influence the future status of the species.

REFERENCES

rrows, W. B. 1912. Michigan Bird Life (quoted by A. C. Bent, 1929).

tes, J. M. 1907. The Bartramian Sandpiper. Bird-lore, 9:84.

ck, H. H. 1949. Status of the upland plover in Lancaster County, Pennsylvania. Auk, 66 (2):202-204.

nt, A. C. 1929. Life histories of North American shore birds. U.S. Nat. Mus. Bull. 146.

ss, Irven, O. 1951. The upland plover in southwestern Yukon Territory. Arctic, 4 (3): 204-213.

ss, Irven, O. and A. S. Hawkins. 1939. The upland plover at Faville Grove, Wisconsin. Wilson Bulletin, 51(4): 202-220.

ues, Elliot. 1874. Birds of the North-West (quoted by A. C. Bent, 1929).

rbush, E. H. 1912. A history of game birds, wild fowl, and shore birds of Massachusetts and adjacent states (quoted by A. C. Bent. 1929).

udson, W. H. 1920. Birds of La Plata (quoted by A. C. Bent, 1929).

udson, W. H. 1922. A hind in Richmond Park (quoted by A. C. Bent, 1929).

McAtee, W. L. and F. E. L. Beal. 1912. Some common game, aquatic and rapacious birds in relation to man. U.S. Dept. of Agric., Farmer's Bull. 497 (quoted by A. C. Bent, 1929).

Murie, Adolph. 1946. Observations on the birds of Mount McKinley National Park, Alaska. The Condor, 48(6): 253-261.

Roberts, T. S. 1919. Water birds of Minnesota past and present. Biennial Rep. of the State Game and Fish Comm. of Minn., for the Biennial Period ending July 31, 1918 (quoted by A. C. Bent, 1929).

Rowan, William. 1926. Notes on Alberta waders included in the British list. British Birds, 20:2-10, 34-42, 82-90, 138-145, 186-192 (quoted by A. C. Bent, 1929).

Stevenson, J. O. 1942. Birds of the central panhandle of Texas. The Condor, 44(3):108-115.

Terrill, L. McI. 1951. Shorebird migration at Montreal. Can. Field Nat., 65(3):87-98.

Urner, C. A. and R. W. Storer. 1949. The distribution and abundance of shorebirds on the north and central New Jersey coast, 1928-1938. Auk, 66(2):177-194.

Wetmore, Alexander. 1926. Observations on the birds of Argentina, Paraguay, Uruguay, and Chile. U.S. Nat. Mus. Bull. 133 (quoted by A. C. Bent, 1929).

NOTES ON THE BREEDING BIOLOGY OF THE MARSH HAWK IN ALBERTA AND SASKATCHEWAN

by **Spencer G. Sealy,** Department of Zoology, U.B.C., Vancouver

This study of the breeding biology f the Marsh Hawk, *Circus cyaneus* Linnaeus), was carried out in Alerta and Saskatchewan during the ummers of 1959 to 1964. Four summers were spent in the Battleford area of northwest central Saskatchewan and two in the Brooks area of outheastern Alberta. The Battleford area (52′ N, 108′ W) is situated in the forest and grassland portion of the Boreal Forest Region (Rowe, 959); the Brooks area (50′ N, 111′ W) is situated in the Grassland Region (Rowe, *op. cit.*). The two areas are roughly 250 miles apart (see Figure 1). A total of 32 nests was studied and a discussion of nest-building, eggs, egg-laying and incubation, and young and their development is presented.

The Battleford area consists of undulating, grass-covered hills interspersed with groves of aspen *(Populus tremuloides)* on a level above the North Saskatchewan and Battle rivers, the northern boundary of the area under consideration. Approximately 35 percent of the area was under cultivation at the time of this study, the remaining portion being tree-covered or pastureland. Aspen stands grow in small to large groves at intermittent spots on hillsides and in valleys; in other locations along the North Saskatchewan and Battle rivers balsam poplar *(P. balsamifera)*, white birch *(Betula papyrifera)*, willow *(Salix* spp.*)*, saskatoon *(Amelanchier)* and hawthorne *(Crataegus)* are also prevalent species. No natural coniferous growth is present although a few planted stands serve as shelterbelts on some farms. Patches of rose *(Rosa)* and snowberry *(Symphoricarpus)*, locally known as "buckbrush", are numerous between the tree groves.

The Brooks area, which is situated in the Eastern Irrigation District

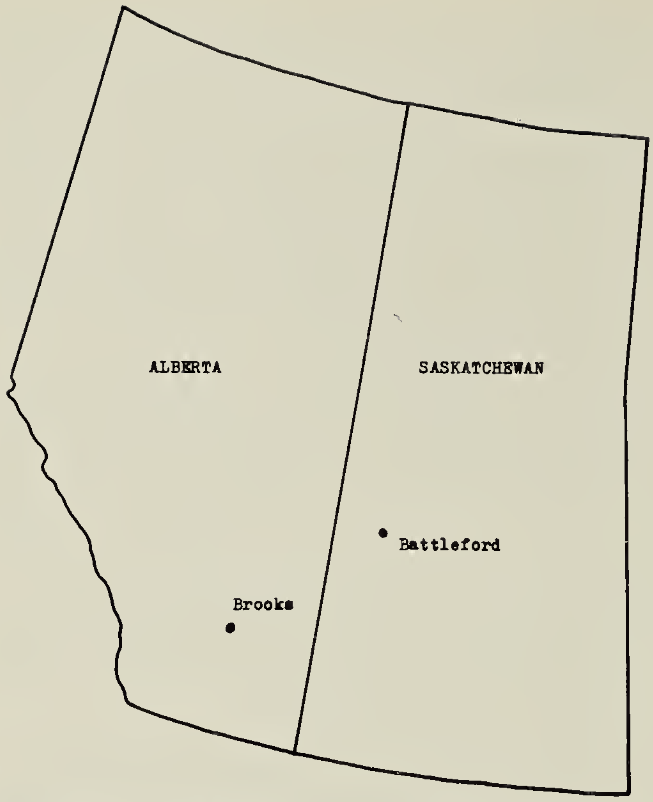


Figure 1. Map showing the location of the Marsh Hawk study areas.

where the annual precipitation is normally too low for the production of cereal crops, has been transformed into arable land by irrigation. Many marshes have developed here in connection with artificial lakes and backwaters. Predominant marsh plants are cattails *(Typha)* and bulrush *(Scirpus)*. Bordering many of the irrigation canals and marshes are willow and poplar. A *Stipa-Bouteloua* grass association is found in those parts of the area not touched by irrigation (Moss, 1959).

Nest and Nest-building

The Marsh Hawk builds a simple nest, usually placed directly on the ground, though sometimes over water. I have no data on nest-site selection or the initial construction of the nest; Pettingill (1956) proposes that the need of suitable support and protection governs the selection of the nest site. The nests I studied were in positions of this nature.

Van Tyne and Berger (1961) distinguish six ways in which the labour involved in nest construction by birds may be divided between the male and female. In my study, only the female Marsh Hawk was observed to construct the nest; however, both adults were observed carrying nest-material to the nest site, the male hovering over the female at the nest site and dropping the material to her. Nesting materials were added throughout the nesting season. An adult female was observed at 7:00 a.m. on July 7, 1964, carrying nesting material (grass) to her nest in the cattails near Brooks. At this date the nest contained one young approximately three weeks old and three unhatched eggs.

In my study I found nests placed in several kinds of plant cover, and this seemed to have some influence on nest success.

In the Battleford area 21 nests were on the ground in clumps of snowberry and rose. Seven nests were measured; these nests averaged 50.0 mm (1.97 in) in depth (much shallower than those situated above water in a marsh) with an average outside diameter of 390 mm (16.18 in) and inside diameter of 250 mm (9.84 in). As the nestlings grew they gradually trampled the nest against the ground. At about three weeks of age the nestlings began to move out and hide in the surrounding vegetation.

TABLE 1. Summary of clutch sizes, hatching success and fledging success of Marsh Hawk nests studied from 1959 to 1962 in the Battleford area, Saskatchewan.

Year	No. eggs in clutches	No. eggs hatched	Per cent hatching success	Per cent fledging success	Mean clutch size
1959	26 (5)*	19	73.07	68.42	5.30
1960	24 (7)	19	79.16	100.00	3.42
1961	18 (5)	16	88.89	100.00	3.60
1962	17 (4)	4	23.46	00.00	4.45
Totals	85 (21)	58	$\bar{x}=62.35$	$\bar{x}=67.11$	$\bar{\bar{x}}=4.18$

* The number of clutches studied.

Total percent fledging success in e Battleford area was high in 1959, 60 and 1961 (see table 1) in the owberry habitat. In 1962, of four sts in snowberry-rose habitat, none as successful in producing any ung, each nest being destroyed by known factors.

In the Brooks area nine out of 11 sts were in cattail marsh and the st was constructed in the form of a atform. Five nests were measured, th an average depth of 240 mm .45 in.), an average outside diaeter of 630 mm (24.80 in) and inside ameter of 255 mm (10.03 in). A nest this type is a bulky but durable ructure with its great depth proding security against potential inease in the water level. The nest is oyant, floating on the water surface ke a raft. As the nestlings grew the est became soggy and water-logged ut supported them.

In the Brooks area nine nests in attails had a much better fledgling uccess than two found in wheatgrass *gropyron)* cover (see table 2). The tter two nests showed a hatching uccess comparable to other situations nd other years but failed to produce ny young which reached the flying age. The young simply disappeared, hich would indicate a high degree of redation once the eggs had hatched. hose nests placed in cattails, however, showed a similar percent hatchng success but also a very high total ercent fledging rate (100% in five ut of seven nests observed in cattails). These nests, being out in a arsh over water, are less accessible o most of the potential mammalian redators in this area; for example, he coyote *(Canis latrans)*, striped kunk *(Mephitis mephitis)* and bader *(Taxidea taxus)*. Predation by gulls *(Larus* spp.*)* was not observed at nests in the cattails but was observed on one occasion (June 19, 1964) at a nest situated in wheatgrass cover.

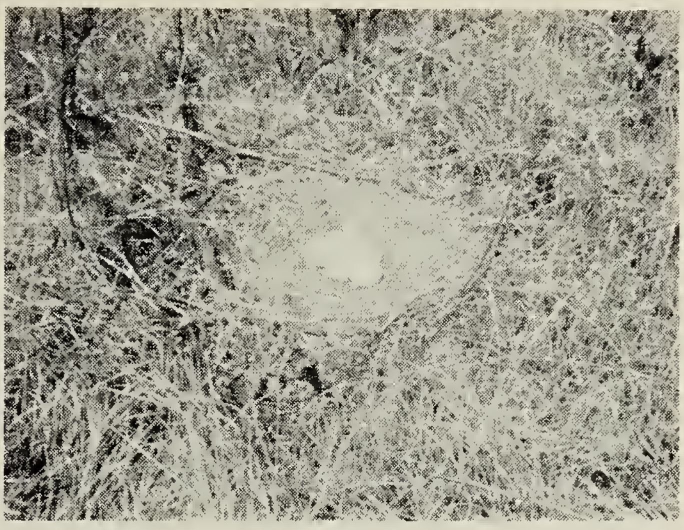


Figure 2. Nest and eggs of the Marsh Hawk on the ground in wheatgrass, Brooks, June 3, 1964.

Three nests situated in cattails in the Brooks area were analyzed for their percentage floral composition. In one nest the Russian thistle *(Salsola)* comprised 85% of the floral components, the remaining 15% being *Aster* (10%), *Typha* (3%) and *Stipa* (2%). The second nest was constructed with Russian thistle, cattail, aster and lined with aspen, wheat *(Triticum)* and speargrass. The third nest was composed of Russian thistle and aster lined with pasture sage *(Artemisia frigida)*.

One nest situated in *Agropyron* cover in the Brooks area (see Fig. 2) was also analyzed. Wheat comprised 98% of the total floral composition with Russian thistle and speargrass making up the remaining 2%.

Many avian predators use the same nest year after year, the Ferruginous Hawk *(Buteo regalis)* and the Rough-legged Hawk *(B. lagopus)* being good

ABLE 2. Summary of percent fledging success of nests situated in *Typha* cover nd *Agropyron* cover in the Brooks area, 1963 and 1964.

	Total No. eggs laid	Total No. hatched	Average hatching success	Average per cent fledging success
ypha cover	29 (9)*	18	62.07	83.33
gropyron cover	11 (2)	7	63.63	00.00

Number of nests in the sample.

examples. In each case the nest is lined and added to each year until it becomes a large size, sometimes, in the case of the Rough-legged Hawk, having as many as 10 layers (Hanson, Queneau, and Scott, 1956). Marsh Hawks do not use the same nest over again; however, whether they use the same nesting site or clump of plant cover again I cannot say. I have found their nests in the same clump of snowberry in the Battleford area for four consecutive years, but as the adults were not colour-marked or banded it was impossible to be sure they were the same birds. Again in the Brooks area a nest was located in the same small marsh for two consecutive years (but in different parts of the marsh), and once again it was impossible to say whether they were the same birds. In England, Richmond (1959) states that "once a pair of Hen Harriers *(Circus cyaneus)* have established a territory, they return to the same area year after year, often

TABLE 3. Summary of clutch sizes, hatching success and fledging success of Marsh Hawk nests studied in 1963 and 1964 in the Brooks area, Alberta.

Year	No. eggs in clutches	No. eggs hatched	Per cent hatching success	Per cent fledging success	Mean clutch size
1963	12 (3)*	5	41.66	100.00	4.00
1964	37 (8)	23	60.27	69.57	4.62
Totals	49 (11)	28	$\bar{x}=57.14$	$\bar{x}=75.00$	$\bar{\bar{x}}=4.45$

* The number of clutches studied.

TABLE 4. Incubation periods of the Marsh Hawk, Brooks, Alberta, 1964.

Nest No.	Egg No.	Date laid	Date hatched	Incubation Period
1	4	May 28	June 27	31 days
	5	May 30	Did not hatch	....
2	6	May 19	June 18	31 days
3	4	May 15	June 24	41 days

Average incubation period = 34.3 days.

TABLE 5. Hatching rhythm of Marsh Hawk chicks in three nests in the Brooks area, 1964.

Nest No.		Egg No.	Date hatched
1		1	infertile
		2	June 23
		3	June 26
		4	June 27
		5	June 29
	Average hatching interval = 1.5 days		
2		1	disappeared
		2	June 15
		3	June 16
		4	June 16
		5	June 18
		6	June 20
	Average hatching interval = 1.0 days		
3		1	June 20
		2	June 22
		3	June 24
		4	June 26
	Average hatching interval = 2.0 days		

within a few yards of the spot here the original nest was built." It as not stated whether this observa-on was based on the return of lour-marked birds.

Eggs, Egg-laying and Incubation

The Marsh Hawk lays bluish-white gs which are occasionally spotted ith brown over their entire surface. leasurements of 16 eggs from the rooks area averaged 45.6 x 36.2 mm 1.79 x 1.42 in) with extremes of 44.5 47.0 mm (1.75 to 1.84 in) in length nd 35.0 to 37.0 mm (1.37 to 1.45) in width. Bent (1961) gives the verage of 84 Marsh Hawk eggs as 6.6 x 36.4 mm.

From tables 1 and 3 it may be seen hat the average clutch size of 21 ests studied at Battleford from 1959 1962 was 4.18 eggs with extreme lutch sizes of three to six eggs. Of ine nests studied at Brooks in 1963 nd 1964 the average clutch was 4.45 ggs with extremes of four to six ggs. Hammond and Henry (1949) reorted an average of 5.05 eggs per est in North Dakota. Maximum lutch sizes of nine eggs (Bent, 1961; earson, 1936) and ten eggs (Baumras, 1942) have been recorded.

Egg-laying began prior to compleion of the nest and after the first ne or two eggs were laid the female ontinued to construct and line the est. Upon deposition of the last egg he nest was generally completed. ach egg was laid during the early orning hours at an interval of two ays (in five clutches). Incubation, egun prior to completion of the lutch, was shared by both parents, the female participating to a greater extent. Both parents defended the territory against intruders during the pre-egg-laying, egg-laying and nestling stages, with the degree of participation varying from one nest to another. The incubation period (calculated using the laying and hatching dates of the last egg in the clutch) was found to be 34.3 days (see table 4).

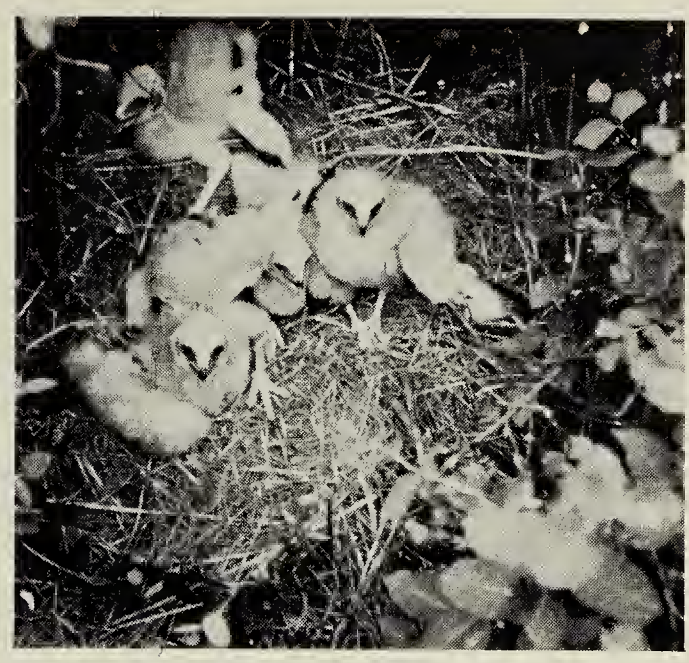


Figure 3. Fourteen-day-old Marsh Hawks, Battleford, June 28, 1960.

Young and Their Development

Since incubation commenced prior to laying of the entire clutch the eggs in each clutch did not hatch simultaneously. Table 5 shows the hatching rhythm of three nests in the Brooks area, 1964, with an overall hatching interval between each egg in a clutch being 1.59 days. The average length of time required for each egg to hatch

ABLE 6. Yearly hatching peaks for the Marsh Hawk in the Battleford and nd Brooks study areas.

rea	Year	Mean hatching date
attleford	1959	June 17
attleford	1960	June 15
attleford	1961	June 18
attleford	1962	June 21
Overall mean hatching date = June 17		
rooks	1963	June 13
rooks	1964	June 18
Overall mean hatching date = June 15		

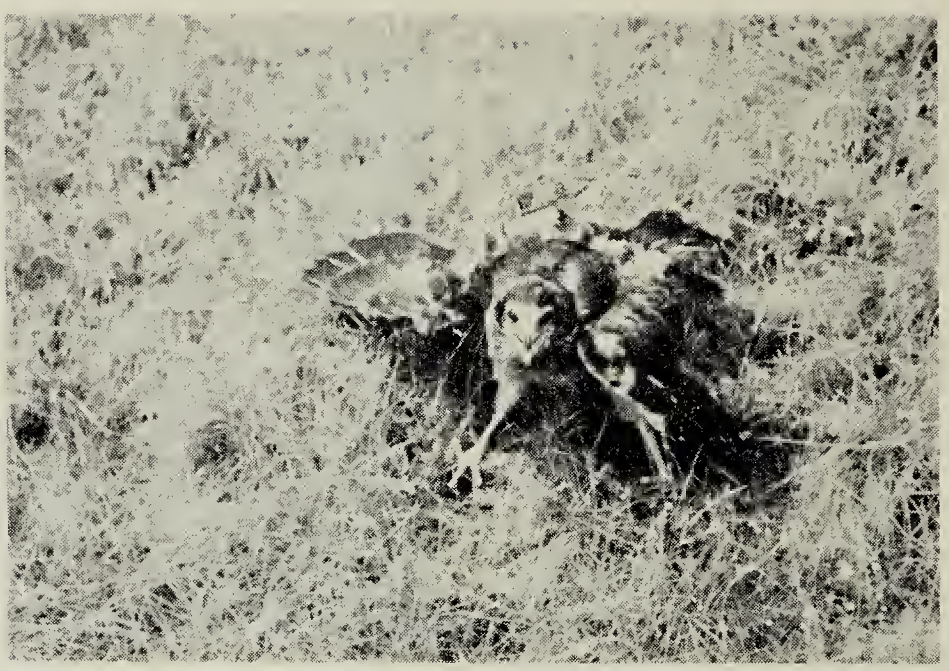


Figure 4. Thirty-five-day-old Marsh Hawk, Battleford, July 11, 1960.

(from the time it pipped to the emergence of the chick) was about 24 hours. The chick's egg-tooth was sloughed off at about five days of age (11 chicks observed).

Table 6 shows the hatching peaks for the Marsh Hawk for four years in the Battleford area and two years in the Brooks area. The overall hatching peak (calculated by averaging the hatching peaks of each clutch) was June 17 and June 15, respectively.

Young Marsh Hawks are altricial, that is, they are incapable of locomotion and entirely dependent upon the parents for food. They remained in the nest for about 35 days (see table 7), all the while being fed by the parents. At the time of hatching they are covered with whitish down tipped with buff on their dorsal and ventral surfaces. Their fleshy tarsi are whitish-yellow and their irises are brown at hatching, the former becoming yellowish-orange prior to fledging and the latter remaining the same.

Activity of the nestlings durin their early period of growth (unt about 10 days of age) is restricte to simple reflexes relating to grasping the floor of the nest with thei feet, to keeping their bodies uprigh and to feeding. A high-pitched **"cheek cheek-cheek"** is uttered by the nestlings at this stage. They began to us their feet as a means of defense a about 14 days of age, turning over o to their backs and clawing at an intruder. It was at this time that th young began to tear up some of thei food which previously had been tor up by the parents. At about 21 day of age many chicks scattered aroun the nest site and hid in the surrounding vegetation. Figures 3 and 4 sho young Marsh Hawks at about 14 day and 35 days of age, respectively.

Figure 5 presents the growth of 1 Marsh Hawk chicks from the time o hatching to fledging and table 8 show the growth using weight and lengt of the tarsus and wing chord. Sinc

Table 7. Time spent in the nest by young Marsh Hawks in the Brooks area 1964.

Nest No.	Date hatched (average of entire brood)	Date left nest	Age (in days)
3	June 22	July 27	35
4	June 13	July 16	35
5	June 20	July 23	35
8	June 12	July 15	34

Average age of chicks at time of departure = 34.7 days

ABLE 8. Growth of the Marsh Hawk in the Brooks area, 1964. Measurements f both sexes are treated together.

Age in days	No. in sample	Mean weight in gm	Mean tarsus length in mm	Mean wing chord length in mm
3	14	74.5	32.0 (1.26)*	31.7 (1.25)*
13	14	296.2	67.3 (2.65)	120.0 (4.72)
15	14	356.2	73.3 (2.89)	143.6 (5.65)
20	14	418.7	82.2 (3.24)	195.6 (7.70)
22	14	445.0	83.3 (3.28)	213.0 (8.39)
24	14	487.5	84.0 (3.31)	229.6 (9.04)
27	14	506.2	84.8 (3.34)	253.3 (9.97)
29	14	481.2	85.0 (3.35)	269.3 (10.60)
33	1	375.0	80.0 (3.15)	268.0 (10.55)

Corresponding measurements in inches given in parentheses.

issection was not carried out to vali- ate identification of sex based on xternal morphology, both sexes are reated together although the females re the larger in most raptor species. lthough the sample is small (Figure) it may be noted that a slight drop n weight occurred prior to fledging. he activity of the young of many pecies of birds increases prior to ledging resulting in an increased nergy consumption and consequently a drop in weight. This may be the case with the Marsh Hawk.

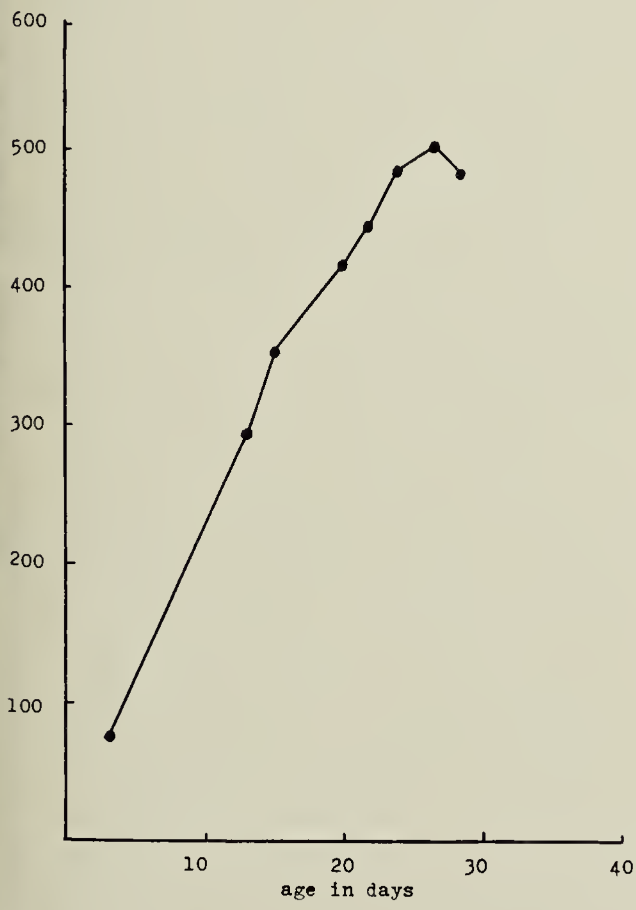


Figure 5. Growth in the Marsh Hawk at Brooks, Alberta, 1964.

Acknowledgements

I should like to thank Dr. C. S. Houston for making it possible to band young Marsh Hawks at Battleford in 1960 and 1961 and also Harold Fisher and G. A. Fox for aiding in banding operations. In the Brooks area, Mr. C. A. Gordon and Mr. J. A. Wolford assisted in many phases of the work. Mr. S. Smoliak identified many of the plants and offered much general botanical information on the two study areas. Finally, I should like to thank Dr. M. D. F. Udvardy and Dr. R. W. Nero for helping me with drafts of the manuscript.

LITERATURE CITED

Baumgras, P. S. 1942. An unusual clutch of Marsh Hawk eggs. (Wils. Bull., 54:50.

Bent, A. C. 1937 (Dover reprint 1961). Life histories of North American birds of prey. Part 1. U.S. Natl. Mus., Wash., Dover Publications, Inc. New York.

Hammond, M.C., and C. J. Henry. 1949. Success of Marsh Hawk nests in North Dakota. Auk, 66:271-274.

Hanson, H. C., P. Queneau, and P. Scott. 1956. The geography, birds and mammals of the Perry River region. Arct. Instit. of N. Am. Spec. Publ. No. 3.

Moss, E. H. 1959. Flora of Alberta. Univ. of Toronto Press.

Pearson, T. G. 1936. Birds of America. Doubleday and Co., Inc.

Pettingill, O. S. 1956. A laboratory and field manual of ornithology. 3rd edition. Burgess Publ. Co., Minneapolis.

Richmond, K. W. 1959. British birds of prey. Lutterworth Press.

Rowe, J. S. 1959. Forest regions of Canada. Canada Dept. of Northern Affairs and National Resources, Forestry Branch, Bull. 123.

Van Tyne, J., and A. J. Berger. 1961. Fundamentals of ornithology. John Wiley and Sons, Inc., New York.

TWO BANDING RETURNS FOR GOLDEN EAGLE AND PEREGRINE FALCON

by **E. Kuyt,** Canadian Wildlife Service, Fort Smith, N.W.T. *

Recoveries of two banded birds, one a Golden Eagle *(Aquila chrysoetos)* and the other a Peregrine Falcon *(Falco peregrinus)* — have recently been reported to me by the U.S. Bird Banding Laboratory in Laurel, Maryland.

The Golden Eagle was banded as an immature and released near Fort Smith, Northwest Territories, Canada, on September 23, 1965. That bird, a photograph of which appeared in the *Blue Jay* (publication of the Saskatchewan Natural History Society) (23 (4)), had been given to me a week earlier by an employee of the Taltson Power Station near Fort Smith. Golden Eagles have been observed nesting in the area.

On October 24, 1965, a Golden Eagle was observed at close range by Mr. Monte Lund on his ranch 20 miles east of Roy, Montana and it appeared that the bird was incapable of flight. The eagle was found dead the following day and upon closer examination Mr. Lund spotted the band I had placed on the bird's leg a month earlier. Mr. Lund informed me that there had been quite a migration of eagles through the area at the time. The eagles had been observed feeding on grasshoppers and on the entrails of hunter-killed deer. The distance between Fort Smith, N.W.T. and Roy, Montana is roughly 1000 miles and the eagle had covered the distance in about a month.

A much longer migration ended in January, 1966 when Mr. Julio Juarez killed a Peregrine Falcon in his yard in India Muerta, Province of Chaco, Argentina. That bird had been banded on July 29, 1965 as a nestling along the Thelon River, N.W.T., where I was engaged in wolf studies. Dr. Gardiner Bump, a U.S. Fish and Wildlife scientist stationed in Buenos Aires, spotted an article in a local newspaper, dated 18 January 1966. The editor of the newspaper reported that the falcon had been chasing domestic chickens. The distance between the point of banding on the Thelon River and India Muerta is roughly 9000 miles.

The falcon, one of two in the aerie, was still covered with down, at the time of banding. Judging from my records collected in other years on the Thelon River, I would estimate that the young falcons would have been capable of flight towards the end of August. If the falcon had left the nest site at that time it must have flown an average of about 2250 miles for each of the four months it lived after fledging to reach the farm of Julio Juarez.

James Enderson (A Breeding and Migration survey of the Peregrine Falcon, **Wilson Bull.,** 77(4) pp. 327-339) has summarized banding recoveries of migrant Peregrines. Many of these migrants, believed to originate in northern areas in Canada and banded in the fall in the United States, have been recovered in the West Indies and Central and Southern America. Because of the northern location of the banding site of the Peregrine Falcon under discussion, I believe that the Thelon River bird's migration constitutes a record for the species and ranks high on the list of long distance migration flights of birds.

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INFORMATION WANTED

The Whistling Swan is being studied by members of Johns Hopkins University and the Maryland Department of Game and Inland Fish in the Chesapeake Bay area. Birds have been trapped and banded and marked with a dark purple color. If you see a Whistling Swan marked with purple please send date and place of sighting along with dye pattern of the coloring to Dr. W. J. Sladen, Johns Hopkins University, 615 North Wolfe Street, Baltimore, Maryland, 21205 or to SNHS, Box 1121, Regina.

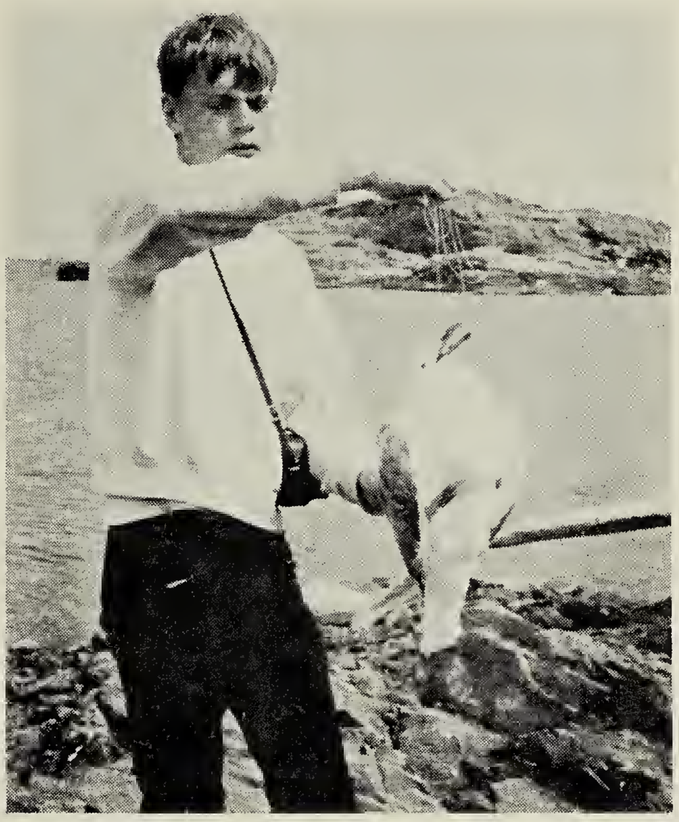
FISHING LURES, A HAZARD TO SEA BIRDS

by **R. Wayne Campbell,** Burnaby, B.C.

Each year, especially during the busy summer months, many sea birds are accidentally caught or "hooked" by sports fishermen along the B.C. Coast. Glaucous-winged Gulls *(Larus glaucescens)* and Marbled Murrelets *(Brachyramphus marmoratum)* are the two sea birds most consistently caught, though occasionally Pigeon Guillemots *(Cepphus columba)* and Common Murres *(Uria aalge)* are involved.

While working with the B.C. Parks Branch on Mitlenatch Island Nature Park (see *Blue Jay*, December, 1965) during the summers of 1964, 1965 and 1966 I heard many disgruntled fishermen complain of their catches of "feathers" instead of "scales". I questioned many of them and compiled the following notes from their reports.

The Glaucous-winged Gull, B.C.'s most abundant resident gull, is usually caught on silver "flashers" which are trolled in a boat's wake just beneath the surface of the water. Sometimes the flasher is baited with strips of herring. To the hungry gull, which is primarily a surface feeder, the darting, shiny flasher must closely resemble a fish. In one passing swoop the bird engulfs the "fish" and before it fully realizes its mistake, the fish-hooks have become embedded in the lining of the esophagus. In attempts to struggle free the gull may snap the fish-line and depart with an embedded lure from which a lengthy piece of the line usually dangles. In time this bird will probably die from starvation. If, by some chance, the bird is able to feed it seems likely that the dangling fish - line will become entangled in beach debris such as logs and small bushes. Probably a combination of hemorraging and starvation soon accounts for the bird's death.



Adult Glaucous - winged Gull found dead on Mitlenatch Island by Barry Edwards. A fish hook was embedded in its esophagus.

Occasionally fishermen reel in gulls that they accidentally catch, only to become frustrated by the problem of releasing the bird. Many fishermen are simply content to cut the line and let the gull fly off. Needless to say, the bird's chance for surviving is greatly reduced. Usually, with a little patience and common sense, the embedded hooks can be removed with a pair of needle-nosed pliers. The gull can then be released relatively unharmed.

Sometimes gulls misjudge the flasher and become entangled in the transparent fish-line. This, of course, is not as serious as being hooked. Usually the bird's flight is impaired and the fisherman can easily capture the gull and remove the entangled line. A note of caution: gulls can inflict painful cuts with their strong bills. Captured birds can easily be calmed down by covering their head with a stocking or shirt sleeve.

Marbled Murrelets, small, dark-brown, chubby-bodied sea birds, feed primarily on fish which they pursue by diving, sometimes to considerable depths. This bird is frequently caught in deep water on small, brilliantly colored plugs, such as a "Lucky Louie" or a "Rexfield". Usually the Murrelet is only hooked by the bill and the plug, therefore, can be easily removed. Last summer, one fisherman reported catching a Marbled Murrelet at a depth of about 75 feet.

In years to come, sea birds will undoubtedly continue to be caught by sports fishermen. Mortalities resulting from these accidents can be reduced considerably if fishermen will make an effort to detach embedded lures and to untangle fish-lines from captured birds.

Most sports fishermen do not realize that many sea birds are indirectly beneficial to man. If it weren't for the Glaucous-winged Gulls which keep commercial and public oyster beds void of predating starfish there would be few oysters on the Pacific Coast. Our litter-free beaches and shorelines owe their cleanliness to an army of scavenging sea birds. Also, many sea birds signal good fishing spots, by congregating to feed on schools of small fish which in turn the salmon feeds on.

Sea birds are a valuable and exciting addition to British Columbia's avifauna and certainly deserve humane treatment.

COMMENSAL FEEDING OF GULL AND PEREGRINE

by **Errol Anderson,** 3520 W. 13th Ave., Vancouver, B.C.

February 18, 1967 was an especially rewarding day for birding on Sea and Iona islands near Vancouver. Lowell Orcutt and myself, members of the Vancouver Natural History Society's Intermediates, recorded 60 species for the day, including Horned Larks, Snow Geese, Black-bellied Plover, Ruddy Ducks, and early migrating Savannah Sparrows. We spotted four male European Widgeon and one female among the several thousand American Widgeon, Green-winged Teal, Pintail, and Shoveler in the flooded fields on Sea Island. Six Rough-legged Hawks and four Marsh Hawks were seen in the short space of three acres near the airport. A total of six Snowy Owls and 15 Short-eared Owls were in the area. A hen Redhead was preening herself along with the Canvasback and Lesser Scaup on the fenced-in pond at Iona Island. We were also rewarded with a glimpse of an elusive Gray Partridge as it flushed from the low brush near the airport.

The highlight of the day, however, was not any of these unusual sightings but a gull standing in the middle of a field. Gulls have an unusual fascination for me, so I set up my telescope for a closer look. I noted that it was a Herring Gull in breeding plumage, but what was unusual was a male Peregrine Falcon eating a duck less than a foot away! The gull was clearly waiting patiently for the table scraps. At our loud exclamations of astonishment the Peregrine picked up his meal and flew to the next field with the gull hotly in pursuit.

I have heard of gulls waiting at the paws of Alaska Brown Bears as they hook salmon from the cascading rivers of the north and I have seen pictures of the Arctic Fox tarrying on the heels of the Polar Bear for the remnant of the seal kill, but I have never heard of a gull and Peregrine commensal feeding association. This is a type of feeding where one of the two animals is the host and the other is the boarder.

SOME NEST HISTORIES OF THE BLACK-BILLED MAGPIE IN SOUTHWESTERN ALBERTA

by **Robert K. Shaw,** Cardston, Alberta

Introduction

During the spring of 1965 a breeding population of Black-billed Magpies *(Pica pica hudsonia)* was studied near Cardston in the foothills of southwestern Alberta. The purpose was to determine the density of breeding magpies within the area, egg numbers, dates of egg-laying and rearing of young, and information relative to magpie population dynamics.

The Black-billed Magpie is resident in most parts of the province except for the far north. Its range includes the foothills, the lower mountain passes, the parklands and those parts of the prairies where a bush in a shelter belt or coulee is large enough to support its nest. It was not always so numerous nor so widely distributed (Salt and Wilk, 1958).

On the treeless prairies of southern Alberta magpies maintain populations along the river-bottom forest of the major creeks and rivers and the chokecherry, serviceberry and hawthorn thickets of coulees.

Description of the Study Area

The Lees Creek valley area of this study covered about one quarter section, the west half of the NW¼-4-3-25w4 and the east half of the NE¼-5-3-25w4. This land is near the south border of the town of Cardston. The Cardston Golf Course lies over part of the north side of the study area and the remainder is pastured by the local dairy herd. Lees Creek runs through the study site from the southwest to the northeast. Approximately half of the quarter section is covered with the poplar growth typical of southern Alberta river-bottom forest, and the other half is predominantly fescue prairie. In addition, a hawthorn thicket of about one acre and several small chokecherry and serviceberry thickets are within the site.

Brush and trees are dense enough for nesting sites to escape detection. Nearby cattle feedlots and farm and ranch operations supplement magpie food supplies.

Review of Literature

Magpie nesting data for southern Alberta is scarce. For adjacent regions, Weeden (1960) reported " . . . two nests found in Chilkat Pass, B.C., both in spruce. A pair raised one young out of a clutch of six eggs (hatched 20 June). Another pair raised one young . . . ."

Brown (1957) in a study of magpies on a 6.3 square mile area in western Montana obtained over 800 nest histories. Breeding population was established at 700 birds in the springs of 1956 and 1957. In 1956, 2300 eggs developed into 1300 nestlings and these in turn into 1200 fledglings. But by spring, 1957, the total population was back down to 700 nesting birds. In 1957, 2400 eggs were laid, 1400 nestlings hatched and 1200 fledglings resulted.

Linsdale (1937) has considerable information on the nesting of the Black-billed Magpie in western North America. The average number of eggs throughout the whole range of this bird was found to be seven. Sets of nine and ten were found, and the largest recorded set was one of 13, found in Montana. Earliest dates for eggs range from late March to early April. The distance from ground to nest ranged from a minimum of four feet to a maximum of 70 feet. The height of the nest seemed to be determined more by the height of available nest trees than by special preference.

Methods

The nest records in this study were obtained by examining at approximately weekly intervals all nests in use within the quarter section. Each nest was assigned a number cut into a tin can lid and nailed to the tree.

Nest trees were identified as to genus and nest height was measured and recorded.

Results

Twenty-one nest histories were obtained. These are summarized in Table 1. From nesting data and direct observations the population of nesting magpies in the study area can be placed at 12 pairs.

Egg laying began in April and extended into June. All young magpies had left the nests by the end of June, and it was not established whether magpies raise second broods during the late summer.

Of the 21 nests followed, young magpies were raised to flight in 9. The 9 completed nests averaged 7.0 eggs per nest. The maximum number was 9. Some egg sets were destroyed or abandoned early, and renesting by several of these pairs of magpies occurred. Twelve of the nests were destroyed or abandoned at some stage. Forty-two young magpies were raised out of the 9 completed nests, an average of 4.7 birds per nest. The maximum number of birds to leave a single nest was 8.

Nest trees were mostly poplars (*Populus* spp.) Nest height varied from 8 to 30 feet above ground, the average height being about 12 feet.

Discussion

In spite of all the adversities experienced by nesting magpies (predators, disease, weather, accident, and boys), this magpie population near a town of 3,000 people is flourishing. Twelve pairs of magpies had a reproductive rate of nearly 200% (24 adults raised 42 young). Losses due to death and emigration are not likely to exceed this increase.

Periodic attempts have been made in the past to destroy all the magpies

TABLE 1. Magpie nesting data southern Alberta, 1965. Figures are number of eggs; underlined figures, number of young.

Nest No.	Hght. (ft.)	Kind of tree	Apr. 29	May 6	May 13	May 28	June 3	June 10	June 21	No. fledged
1.	8	poplar	5	8	5	empty				
3.		unknown	..	..	..	..	6	6	$\underline{3}$	$\underline{3}$
4.		unknown	..	..	..	..	2	1	empty	
5.	20	poplar	..	3	7	empty				
6.	8	poplar	5	9	8	$\underline{7}$	$\underline{6}$	$\underline{6}$	empty	$\underline{6}$
7.	18	poplar	7	8	8	$\underline{8}$	$\underline{8}$	empty		$\underline{8}$
8.	8	poplar	2	8	6	empty				
9.	12	poplar	..	1	4	4	1-$\underline{2}$	$\underline{2}$	empty	$\underline{2}$
10.	12	poplar	9	9	..	8	8	empty		
11.	10	poplar	2	4	4	4	4	empty		
12.	12	poplar	2	7	7	empty				
13.	8	poplar	..	..	..	..	6	$\underline{4}$	empty	$\underline{4}$
14.	8	hawthorn	8	9	9	4	$\underline{4}$	empty		$\underline{4}$
16.	15	poplar	..	4	7	1-$\underline{7}$	$\underline{5}$	$\underline{5}$	empty	$\underline{5}$
18.	10	poplar	2	6	7	empty				
19.	12	birch	6	7	empty					
20.	30	poplar	..	6	8	$\underline{4}$	$\underline{4}$	empty		$\underline{4}$
25.	10	poplar	1	4	empty					
27.	10	poplar	..	1	empty					
28.	15	poplar	7	8	9	8	empty			
29.	20	poplar	..	5	6	$\underline{7}$	$\underline{6}$	$\underline{6}$	empty	$\underline{6}$
Total eggs			56	105	94	25	27	7		
Total young			..	..	..	$\underline{37}$	$\underline{35}$	$\underline{23}$	$\underline{8}$	$\underline{42}$

in the Lees Creek valley. These efforts, carried out under the bounty system, have been unsuccessful. The higher reproductive potential of a reduced population and the fact that bounties were paid on the easily collected young magpies, many of which would die anyway, are facts now fairly well understood by most sportsmen's groups.

Magpie population and nesting dynamics in this study compare favorably with Brown's (1957) results. Here on Lees Creek, density of breeding birds was 24 per quarter section. On Brown's 6.3 square mile area in Montana's Bitterroot Valley the density was 28 birds per quarter section. Reproductive rate for Lees Creek was 42 young birds per quarter section and in Montana 50 per quarter section. Average number of eggs per completed nest reported by Linsdale (1937) was 7; by Brown, 6.7; and in the Lees Creek, 7.0 eggs per nest. Average number of young magpies to leave the nest in Montana was 3.4; on Lees Creek it was 4.7.

LITERATURE CITED

Brown, R. L. 1957. Magpie ups and downs. Bull. No. 3, Montana Fish and Game Dept., Helena, Montana.

Linsdale, J. M. 1937. The natural history of magpies. Pub. No. 25, Cooper Ornithological Club, Berkeley, Calif.

Salt, W. R. and A. L. Wilk. 1958. The birds of Alberta. Queen's Printer, Edmonton.

Weeden, R. B. 1960. The Birds of Chilkat Pass, British Columbia. Can. Field-Nat., 74:119-129.

BLACK-THROATED BLUE WARBLER REACHES BELCHER ISLANDS, N.W.T.

by **Stanley Zazalenchuk**, Belcher Islands

I was much excited when on October 20, 1966 a male Black-throated Blue Warbler *(Dendroica caerulescens)* was sighted and later unexpectedly collected in an odd manner. Upon returning to class after the morning recess several children reported seeing a small blue and white bird which was apparently seeking shelter under the eaves of a house. I quizzed the youngsters, but even then was unable to attempt a satisfactory guess as to what it might be. Regretfully, I went to lunch, wishing I had seen the bird myself. While I was still thinking about this and preparing my lunch two boys came in. Johnny called out, "Isaac got the bird!" Sure enough, there was Isaac holding a small, ruffled bird. I recognized it immediately as a male Black-throated Blue Warbler. Peterson's *Field Guide to the birds* confirmed my identification.

The range of this warbler as given by Peterson is southern Quebec and southern Ontario, where it breeds in the undergrowth of deciduous and mixed woodlands. I then checked Snyder's *Arctic birds of Canada*, but found no mention of a record of this species.

The Belcher Islands are a group of islands in Hudson Bay, approximately 70 air miles west of the Quebec mainland. Our settlement is located approximately at a latitude of 55° 54′. The islands are devoid of any trees except stunted dwarfed willows a foot or so in height. I assume that the warbler got sidetracked from his regular route, as the islands are obviously far beyond its normal range.

It is possible that the relatively cool temperature on October 20, somewhere in the low forties, hindered the bird's activity and caused it to seek shelter, for during the two hours after the first sighting, it flew only several hundred yards, then settled into the grass where young Isaac spotted it on his way home from lunch. Owing to his ability to pitch a small stone with unusual accuracy we have now established beyond any doubt the occurrence of the Black-throated Blue Warbler in this northerly region. I plan to prepare the bird as a study specimen and donate it to the collections of the National Museum at Ottawa.

MOUNTAIN CHICKADEE IN SOUTHWESTERN SASKATCHEWAN

by **Steve A. Mann**, Piapot

We first noticed a chickadee with a white stripe above the eye feeding at our trays outside the kitchen window, on December 3, 1966. At first we thought it was a freak Black-capped Chickadee as we could not find any bird similar to it in Roger T. Peterson's *Field guide to the birds* or Richard Pough's *Audubon bird guide*, but we finally found it in P. A. Taverner's *Birds of Western Canada* and Chapman and Reed's *Color key to North American birds*. After that, we were fairly certain that it was not a "freak" but a true specimen of a Mountain Chickadee which had wandered from its regular range. After making inquiries by correspondence of several authorities on birds and their habits we were convinced that it was a first record for Saskatchewan.

The Mountain Chickadee breeds in the mountains of western North America. In southwestern Alberta it has been recorded as a permanent resident in the Jasper, Banff and Waterton Lakes parks. Neither the revised edition of Salt and Wilk's *Birds of Alberta* (1966) nor W. E. Godfrey's new *Birds of Canada* (1966) has any record of the Mountain Chickadee wandering farther east on the Prairies than Calgary and Edmonton. Following my report of the Mountain Chickadee at Piapot, Margaret Belcher called my attention to a report of two seen by the Calgary Bird Club on their 1966 Christmas Bird Count, and to another report for the Black Hills in South Dakota published in *Audubon Field Notes*, 21:50, February, 1967: "A Mountain Chickadee at Rapid City from Nov. 19 to Nov. 30 was the first local record and was 'probably a stray from the Casper Mountains about 250 miles west.' "

"Stripes", as we named the unusual chickadee, could be seen at feed trays around our yard any day from December 3 to the end of March, and then only on odd days thereafter. The last date we saw the chickadee was on April 22.

We had a mild spell on March 15 and 16 when "Stripes" treated us to his song, which was quite different from the spring song of the Black-capped Chickadee. In was a three-note trill, quite clear and distinct: one that a person used to hearing bird songs and calls would stop and listen to, and investigate to find the bird that was singing. There were only four of us that heard its song, but quite a number came to see the bird at the trays.

We tried to get some snapshots of it through the window, about two feet from the bird, and others out of doors. No one in the district had a camera with a special lens, so all the snaps were taken with an ordinary camera. Of those that we have had developed so far, only one has proven clear enough to tell that it was even a chickadee, but it is to be hoped that we shall still get a picture that would be useful in identifying the bird. Some suggested that I should collect the bird to have a fully supported record for Saskatchewan, but we became too attached to it to consider destroying it. I believe, though, that enough people have come to see it feeding at our trays to establish it as a Mountain Chickadee and not a freak.

COOPERATIVE MIGRATION STUDY

Contributors to the cooperative migration survey, carried on under the auspices of the U.S. Fish and Wildlife Service, are reminded to send their records by July 15, 1967 to

Mrs. Mary Houston
863 University Drive
Saskatoon, Saskatchewan.

CANADA GOOSE NESTING RECORD FOR BATTLEFORD

by **Spencer G. Sealy,** Department of Zoology, U.B.C., Vancouver

The Canada Goose, *Branta canadensis* (Linnaeus), is one of the most widely distributed and the most generally known of our wild geese; in fact, according to Godfrey (1966) it is "*the* wild goose to most Canadians", breeding from western Alaska eastward to Labrador and Newfoundland and south to northeastern California, Utah, Kansas, and rarely to Maine and Massachusetts. There are many nesting records of this species for Saskatchewan, particularly the southern portion of the province; however, to my knowledge none has been recorded nesting in the Battleford area. In areas near the Battleford area the Canada Goose has been recorded nesting at Carlton (Blakiston in Houston and Street, 1959), Kindersley (G. A. Fox, *pers. corres.*, 1958) and Waterhen Marsh near Kinistino (Houston and Street, 1959; McKim, 1951). Mr. C. F. Shirley (*in* Godfrey, 1950) stated that Canada Geese are regular spring and autumn migrants in the Flotten Lake region, but he had no evidence of breeding.

A letter addressed to Dr. Ralph D. Bird (then of Brandon, Manitoba) dated January 8, 1940, from Mr. R. Morris Ferrie of North Battleford, Saskatchewan, was recently found within the pages of a book donated to the Manitoba Museum of Man and Nature by Dr. Bird. This letter contained three photographs, two of which were of a Canada Goose nest in a tree near Battleford. Referring to two of the photographs, Mr. Ferrie wrote "One, you will note, is just a large nest in a tree; another is the same nest with a large bird leaving it. Both were taken within a few minutes. The bird leaving the nest is the female Canada Goose" (see photograph). Upon recent query, Mr. Ferrie (Secretary - Manager, Saskatchewan Fish and Game League), stated: "It is a long time since the goose nest in the tree. . . . As I recall it was 25 feet up or so in a black poplar tree along the North Saskatchewan River. By tapping on the tree trunk the bird was disturbed enough to get the picture of her leaving the nest" (*pers. corres.*, R. W. Nero, April 17, 1967).

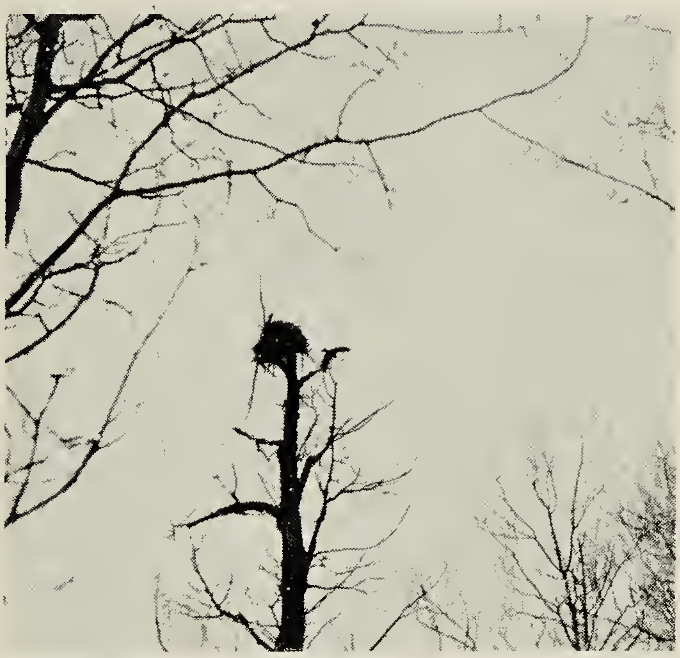


Photo by R. M. Ferrie

Canada Goose leaving nest in Battleford area, around 1939.

It has often been remarked that the Canada Goose shows a definite preference for islands when choosing a nest site. It commonly places its nest on the ground, in which case the island site has obvious advantages. Visibility at the nest site and its importance as a major factor in selecting nest sites has been stressed by many observers.

Although the Canada Goose commonly nests on the ground, it has often been recorded using abandoned tree nests (Bent, 1925; Godfrey, 1966; Salt and Wilk, 1958; and others), and it appears obvious that maximum visibility and freedom from mammalian predators would be afforded by placing the nest in a tree, especially in an area with dense vegetation such as exists along the North Saskatchewan River near Battleford. Klopman (1958) found at Dog Lake, Manitoba, that Canada Geese did not build ground nests in dense stands of vegetation and no nests were found within 100 yards of forest cover. Geis (1956), however, found that 25 percent of all island nests in Flathead Lake, Montana, were located in woods or under thick shrub cover. Since this species arrives back in the Battleford area early in the spring (April 1 in 1960 and 1961) the choice of a tree nest may have been due to the presence of snow cover; however, phenological data for 1939 (the presumed year of this nest) is unfortunately lacking.

I should like to thank Dr. Ralph D. Bird (now of Gange, British Columbia) for permitting this record to be published and Dr. Robert W. Nero for bringing this material to my attention.

LITERATURE CITED

Bent, A. C. 1925. Life histories of North American wild fowl. U.S. Nat. Mus. Bull., 130.

Geis, M. B. 1956. Productivity of Canada geese in the Flathead Valley, Montana. J. Wildl. Mgmt., 20:409-419.

Godfrey, W. E. 1950. Birds of the Cypress Hills and Flotten Lake regions, Saskatchewan. Nat. Mus. Canada, Bull. 120.

——. 1966. The birds of Canada. Nat. Mus. Canada, Bull. 203.

Houston, C. S., and M. G. Street. 1959. The birds of the Saskatchewan River from Carlton to Cumberland. Sask. Nat. Hist. Soc. Spec. Publ. No. 2.

Klopman, R. B. 1958. The nesting of the Canada goose at Dog Lake, Manitoba. Wilson Bull., 70:168-183.

McKim, L. T. 1951. Gull colony at Waterhen Marsh. Blue Jay 9(3):4.

Salt, W. R., and A. L. Wilk. 1958. The birds of Alberta. Queen's Printer, Edmonton.

BIRDS AT INGLEWOOD BIRD SANCTUARY, CALGARY

Some of our readers, especially those in southern Alberta, will be interested in a check-list that has just appeared of *Birds recorded at Inglewood Bird Sanctuary, Calgary* (February 25, 1967). This six-page mimeographed bulletin presents a list compiled by Cleve Wershler from the observations of members of the Calgary Bird Club. It records 135 species observed at the Inglewood Bird Sanctuary or on the river close-by since 1956. Species which occur typically in each season are indicated, and an accompanying table lists the 135 species and shows their occurrence month by month.

Visitors coming to the sanctuary to watch birds are urged to come during the peak migrations in May or August, for 65 of the 135 species recorded have been observed *only* during migration. These species include a number which breed in the boreal forest and Arctic tundra and stop on their flight over the prairies to feed at the few "oases" of suitable habitat that they can find, such as the Inglewood Bird Sanctuary.

One species now found at Inglewood is of special interest. Ten years ago the White-breasted Nuthatch was hardly known at Calgary; now it is seen regularly.

Mr. Wershler emphasizes that the information given in the table is not complete, and asks for additional records. These additions should be sent to him in care of Dr. M. T. Myres, President of the Calgary Bird Club, from whom copies of the bulletin can be obtained. Write

Dr. M. T. Myres,
Department of Biology,
University of Calgary,
Calgary, Alberta.

PRAIRIE NEST RECORDS SCHEME

All contributors to the Prairie Nest Records Scheme are asked to note that the new chairman of the scheme is Dr. Robert W. Nero of the Manitoba Museum of Man and Nature. Please write to him for nest record cards, and send your completed cards to him at the end of the season.

Cards are wanted from as many observers as are able to keep good records of individual nests or colonies of nests. If you need further advice about keeping records, please write to Dr. Nero at the following address.

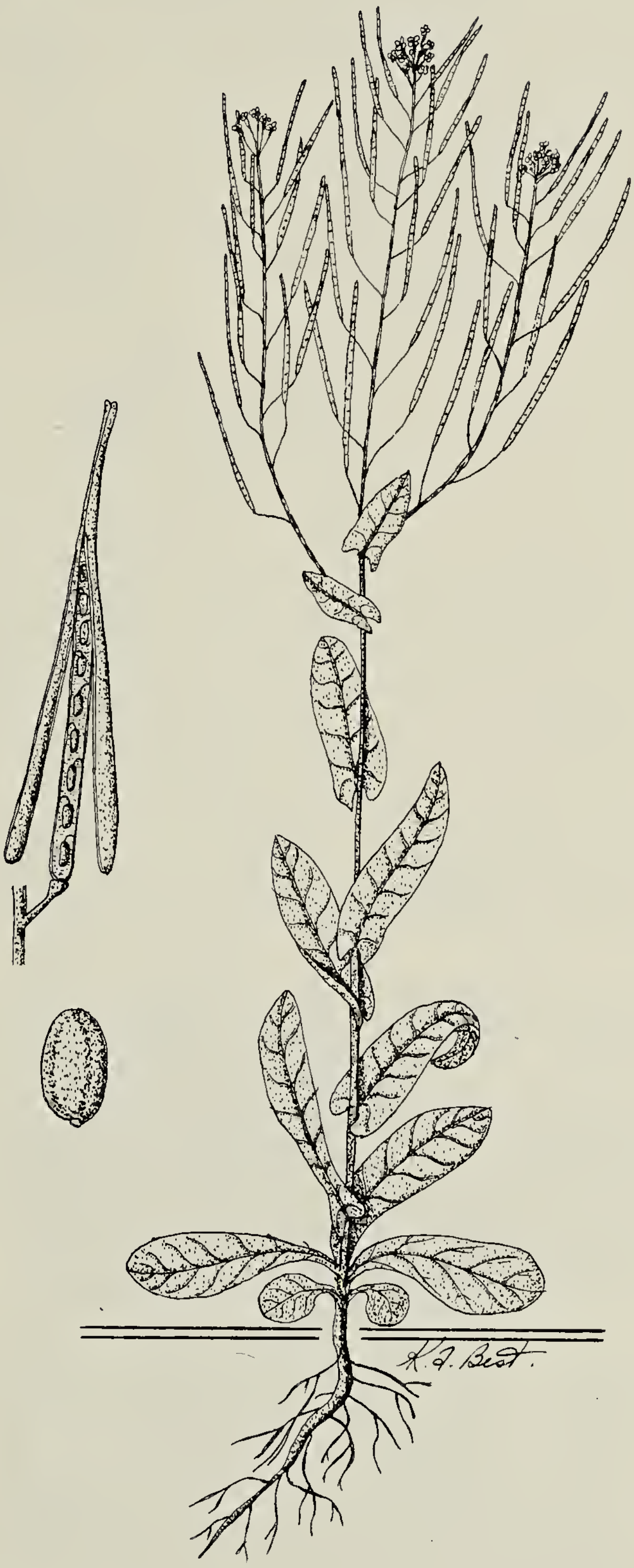
Dr. R. W. Nero
Museum of Man and Nature
Winnipeg 2, Manitoba

MUSTARDS AND PINKS

by **Keith F. Best,** Research Station, Swift Current

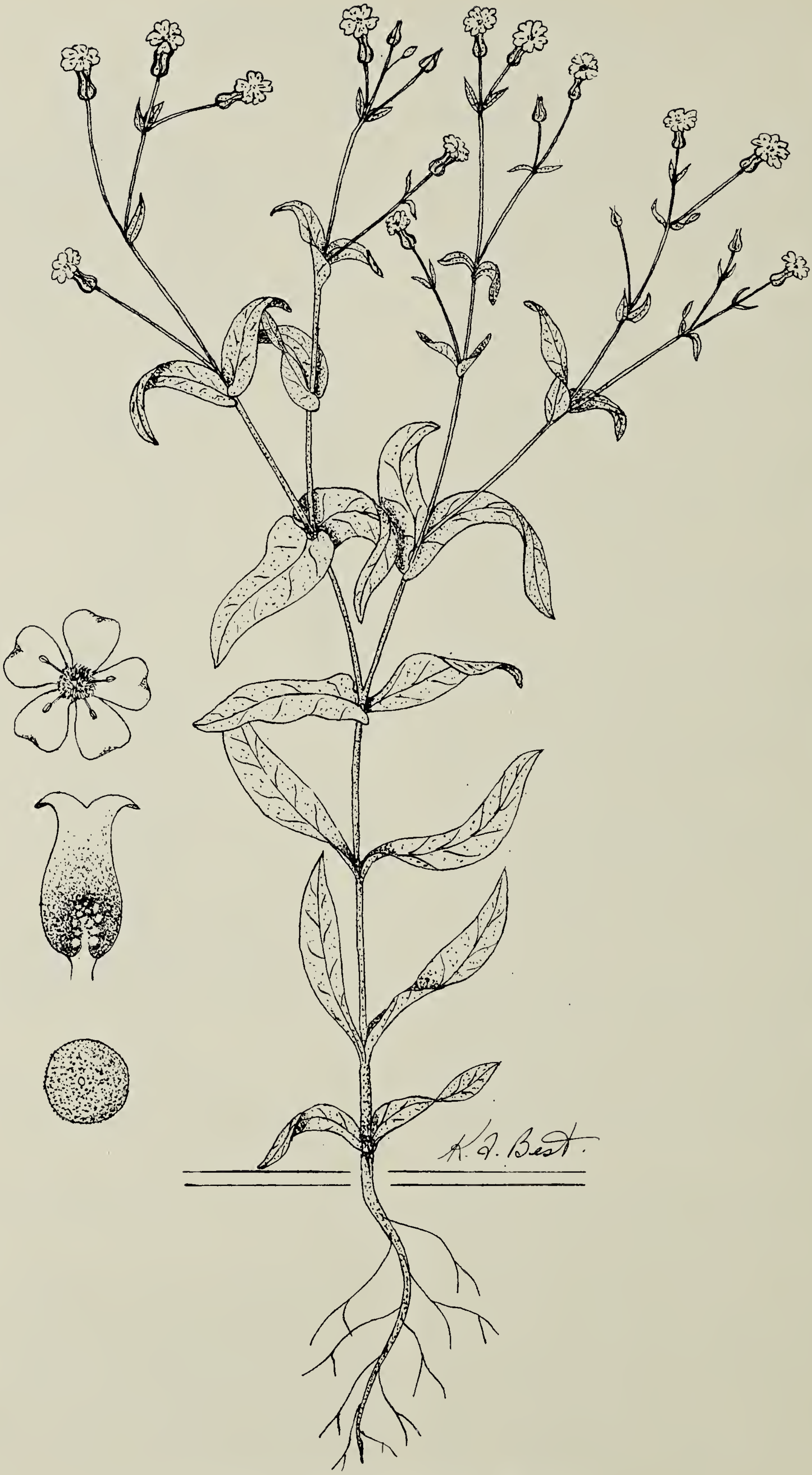
Pinks have always been favorites in civilized man's gardens, probably even before they were given their proud name of Dianthus (literally, "Jove's flower") by Theophrasus about 300 B.C. Many of our most beautiful garden flowers are included in the Caryophyllaceae or Pink Family among which are various species of catchfly (Silene, Lychnis), true pinks (Dianthus) and baby's-breath (Gypsophila). The most popular and widely grown of all pinks is probably the carnation or clove pink, *(Dianthus caryophyllus)* of which there are scores of varieties grown under glass by the commercial florists.

Cow cockle *(Saponaria vaccaria),* although considered to be a weed, is also a member of the Pink Family and is found in grain fields, waste places, roadsides and railway grades. Introduced from Eurpoe, this smooth, hairless annual grows from 1 to 2½ feet in height, with smooth, entire, clasping, grayish-green leaves, that are borne opposite each other in pairs on the stem. The flowers are showy, loosely grouped at the ends of the stems and have five pale red petals, while the sepals are united into an inflated, flask-like tube which is strongly 5-ribbed. The seeds are numerous, round and dull black with the surface roughened by many minute projections. The seeds, containing saporin, are poisonous to animals and are often found in "Wild Flower Garden" packets sold by seed houses.



Hare's-ear Mustard
Conringi orientalis

One of the largest and most important families is that of the mustards. They are referred to as crucifers or cross-bearers because the corolla is made up in almost all cases of four petals borne in opposite pairs in a manner suggestive of a cross. Also, the mostly six stamens are arranged in a very distinctive pattern —four are longer than the remaining two. A number of important vegetables belong to this group, among them cabbage, brussel sprouts, kohlrabi, cauliflower, kale, broccoli, radish, turnip and horseradish. Our flower gardens contain many handsome crucifers from other parts of the world, cultivated for their handsome flowers, such as wall flowers, stock, rocket and sweet-alyssum.



Cow Cockle, *Saponaria vaccaria*

Just as interestiong however, are some crucifers to which we apply the designation of weeds. The mustard family contains many plants admirably adapted to become weeds if given the opportunity of doing so.

Hare's-ear mustard *(Conringia orientalis)*, an annual or winter annual growing up to a height of two feet, was introduced from Europe. The leaves are bluish-green, up to 5 inches long, alternate and clasping the stem with earlike basal lobes. The small, creamy-white flowers are borne at the end of the stems and ripen into long, narrow, 4-angled erect pods. The seeds are brownish with a distinctive white projection at the lower end, and may cause poisoning when fed in grain. The young plants have a whitish bloom and resemble cabbage seedlings.

ARE YOU INTERESTED IN MUSHROOMS?

by **Connie B. Pratt,** 3136 Rae St., Regina

It is seldom that reports or photographs of fungi appear in the *Blue Jay,* and yet this is a subject that can become a fascinating study. Having begun myself to make a study of fungi, and particularly of the mushrooms, I want to appeal to other interested people to submit their observations to our magazine, which is intended to include many phases of natural history.

Mushrooms are of interest to us in many ways. To begin with, many people are interested in them as a source of food and in knowing which species are edible. Care should be taken when eating a new species of mushroom for the first time even when it is considered edible, for some species will make certain individuals ill while their companions enjoy the delicacy. Biologically speaking, one of the chief functions of the mushroom is to aid in the breakdown of dead organic material. Some trees cannot thrive without the presence of their fungus associates. Another interest in the mushrooms comes from scientists who are studying them as a possible source of antibiotic substances.

The great number of species that occur, the wide variety in form and colour, and the surprise of finding something different in the same locality under varying weather conditions add to the fascination of studying and photographing the mushrooms.

In identifying mushrooms I have found the following texts helpful:

J. Walton Groves, *Edible and poisonous mushrooms of Canada* (Queen's Printer, Ottawa. 1962. $6.00.)

J. Walton Groves, *Mushroom collecting for beginners* (Canada Dept. of Agriculture, Publication 861, Ottawa. 1958. Free.)

Alexander H. Smith, *The Mushroom hunter's field guide,* (University of Michigan Press, Ann Arbor. 1963. $6.95.)

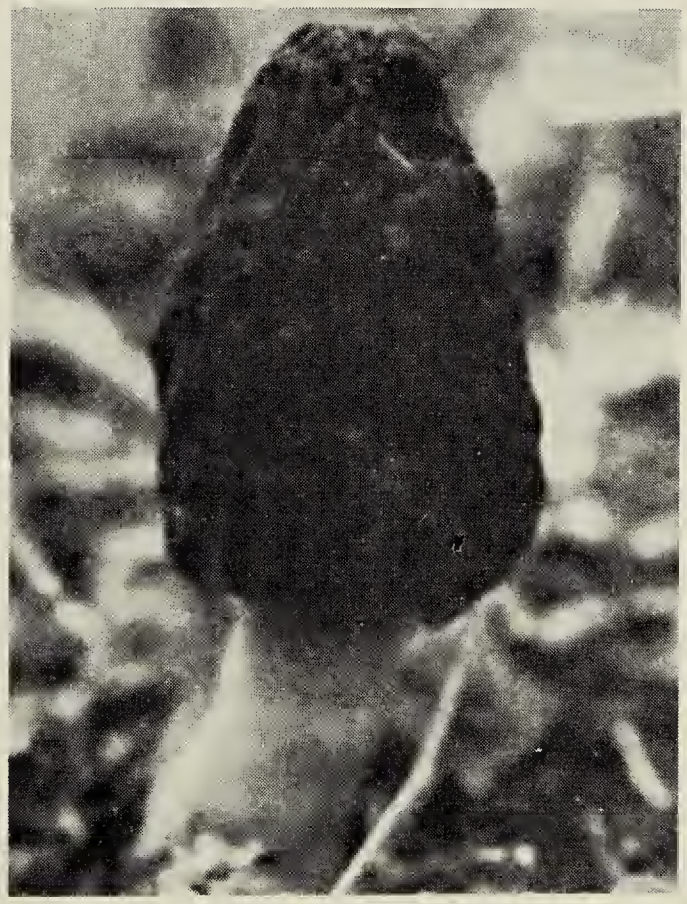


Photo by C. B. Pratt

Narrow-capped Morel *(Morchella angusticeps)*. Ascomycetes. Edible. Woods along Hanson Lake Road, June, 1965.

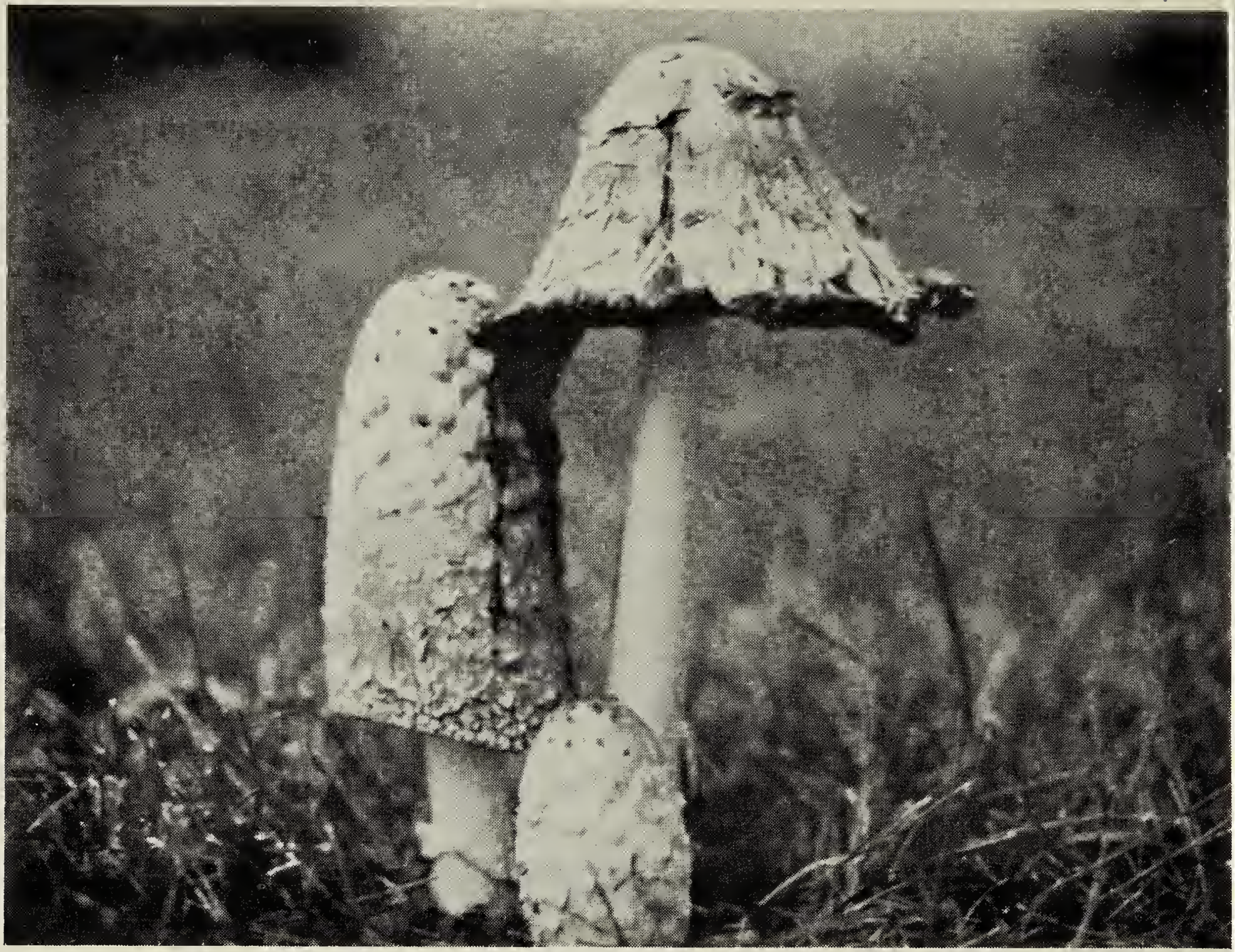


Photo by C. B. Pratt

Shaggy Mane *(Coprinus comatus)*. Basidiomycetes. Edible. Lawn in Regina, August 1966.

University of Michigan Press. 1963. $6.95.)

I find that one needs to use several guides, for no text will have all of the species of mushroom listed. These guides will also give you an introduction to the structural parts of the mushroom, and illustrations by which you can become familiar with these principal parts.

When you find a mushroom you wish to identify, record a description of it in the fresh state—the location where the mushroom was found, its height, size of "stipe" or stem, shape of "pileus" or cap, colour, odour, etc. Mushrooms are easily damaged. Some can be stored overnight in a cool place, but others do not stay fresh and should be examined and described at once. Mushrooms should never be preserved in a fluid, but if properly dried they will keep indefinitely.

Fungi have an interesting place in the plant kingdom, belonging to the Thallophyta, which are simple plants not differentiated into true roots, stems or leaves. The Fungi do not contain chlorophyll and must depend for their food upon organic matter synthesized by other organisms. They grow either as saprophytes or parasites. The Fungi are divided into two sub-groups — the Pseudomycetes and the Eumycetes, and the Eumycetes are again divided into four main divisions — the Phycomycetes, Ascomycetes, Basidiomycetes and Fungi Imperfecti. Most of our mushrooms belong to the division Basidiomycetes. These terms sound forbidding at first, but they are really no more so than the names of flowers and birds, and any good guide will show you how the mushrooms fit into their place in the plant world.

NEW BUTTERFLY RECORDS FOR SASKATCHEWAN AND ALBERTA

by Ronald R. Hooper, Fort Qu'Appelle

I recently received a shipment of butterflies back from Mr. C. F. Dos Passos of Mendham, New Jersey, confirming six new species records for Saskatchewan and one for Alberta. The Saskatchewan specimens were all collected in the Tantallon area, in July, 1966, while I was collecting insects for the Saskatchewan Museum of Natural History. This area is one of the few places in Saskatchewan where the scrub oak *(Quercus macrocarpa)* grows in abundance. It is also an important area in that some eastern species of wildlife seem to extend their range westward from Manitoba along the Qu'Appelle Valley here.

LEAST SKIPPER *(Ancyloxipha numitor* Fabricius*)*. Five specimens were collected on July 8, 1966 east of Tantallon along a spring-fed stream on the north slope of the valley. These tiny butterflies were found darting among the sedges where the water was ankle-deep, thus making it somewhat difficult for the collector. I have taken this species before at Oak Lake, Manitoba, on June 30, 1962, on the blossom of an arrowhead *(Sagittaria cuneata)*. The species has been taken at several other places in southern Manitoba. There is one specimen from Lethbridge, Alberta, in the Saskatchewan Museum of Natural History in Regina, that was collected by J. B. Wallis. This would indicate that the Least Skipper should be watched for throughout southern Saskatchewan. According to Dos Passos, these specimens could confirm the existence of what has been a questionable subspecies (*A. n. longleyi* French).

REAKIRT'S BLUE *(Hemiargus isola isola* Reakirt*)*. One faded specimen was collected on yellow clover *(Melilotus officinalis)* along a roadside east of Tantallon on July 6, 1966. This appears to be the first record for the prairie provinces. The closest other records are from central Minnesota, from whence it may be a wind-blown stray.

COLORADO BLUE *(Philotes battoides centralis* Barnes and McDunnough). One specimen was collected at Elkwater in the Cypress Hills of Alberta, June 18, 1963. This specimen had been left papered in my collection until last fall. I had thought it an Acmon Blue *(Plebejus acmon)*, and therefore nothing new for Alberta, so I had not mounted it. This is the only specimen that I know of that has been collected in the prairie provinces. The closest records of Colorado Blue are from Missoula, Montana, and Kootenay, B.C. I know of no other records east of the Great Divide. I collected the specimen among scattered clumps of short grass on a dry, gravelly hill-top. It is in good condition. This species should now be watched for in the Cypress Hills of Saskatchewan.

BANDED HAIRSTREAK *(Strymon falacer godarti* Field*)*. Three specimens were collected on July 8, 1966, east of Tantallon. These, and several other butterflies of this species that were seen, were among scrub oak which is probably the food plant in our area for this species. I captured the first specimen on the blossoms of meadowsweet *(Spiraea alba)*. The other specimens were landed on low oak leaves. This is an eastern species of butterfly that has previously been taken as far west in Canada as Aweme and Cartwright in Manitoba.

HARRIS' CHECKERSPOT *(Melitaea harrisii hanhami* Fletcher*)*. Many specimens were collected in the tall, coarse grass of a wet meadow in the Qu'Appelle Valley east of Tantallon on July 7-9, 1966. Some specimens were also taken on alfalfa blossoms in a nearby field. This is an eastern species that has been taken previously as far west as Beulah and Birtle, Manitoba.

EYED BROWN *(Lethe eurydice*

transmontana Gosse*)*. One colony was discovered and several specimens collected in the marsh next to the wet meadow where the Harris' Checkerspot was found, the Eyed Brown seeming to prefer a wetter habitat. I took these specimens as I flushed them from the thick grassy cover of the marsh, July 7-9, 1966. This eastern species has also been taken previously as far west as Beulah and Birtle, Manitoba.

LITTLE WOOD SATYR *(Euptychia cymela cymela* Cramer*)*. Many specimens were collected east of Tantallon, July 6-9, 1966. All specimens looked as if they had been on the wing for some time. They were hard to capture as they dodged through the thick hazel-nut bushes that grow around the oak trees. This eastern species has been taken before as far west as Beulah, Manitoba. I have an unauthenticated report of a specimen being taken by a Mr. Shaw in the Weyburn area. This specimen is somewhere in an American collection, and I have not been able to confirm its identity.

HISTORY OF THE COUGAR IN SASKATCHEWAN

by **Thomas White,** 1 - 2105 Cornwall St., Regina

This article records stories I have collected over the last six years. Only two reports could be verified by hides obtained from the animals, but all were given in good faith by persons who remember the experience as exceptional. The wide distribution and the dates of the reports are interesting. Both the South and North Saskatchewan River valleys are ideal cougar habitat and it is questionable if the cougars that occupied it were wanderers. The cougars of the Pasquia Hills are far from the known cougar range, and it is likely that they have always been native to this area. Other reports may indicate that historically the cougar occurred elsewhere and it has always been an extremely rare native of Saskatchewan.

Historical reports of the cougar in Saskatchewan are of interest because cougars were previously considered to exist in Canada only in the mountains of British Columbia and Alberta, with an occasional wanderer roaming into the Cypress Hills in the southwestern part of Saskatchewan.

The writings of Ernest Thompson Seton (1929) contain no reference to cougars in Saskatchewan though he mentions almost every other province and state in North America. Young and Goldman (1946), whose book on the cougar is the most comprehensive so far published, give one record south of Kindersley and say that reports are extremely rare. The standard works on mammals either exclude the province entirely or put the extreme outer edge of the range in the Cypress Hills, although one has a question mark in the Pasquia Hills. Dewey Soper (1961a) states that there are unconfirmed reports of cougars being killed in the southern part of the province, mainly in the early part of the century when occurrences were rare and becoming rarer, and gives two probable records: in 1912 near old Fort Walsh, Cypress Hills, and in 1939 south of Kindersley as reported by Young and Goldman. Beck (1958) reports a 1948 record for Connell Creek, but states that cougars are occasional stragglers. A recent pamphlet by Victor Cahalane (1964) excludes most of the province, but shows an area in the west of the province above Lloydminster and Battleford where they are described as rare wanderers and probably not residents, and a question mark in Manitoba west of Lake Winnipeg. Anderson (1946) writes that cougars ranged "east formerly to western Saskatchewan and northwestern North Dakota."

There are records of cougars in all the areas adjacent to Saskatchewan during this century, which indicates that this general area can not have been alien to them in relatively recent times. North Dakota, Montana, Manitoba, the Hudson Bay region and Alberta have their records, though with the exception of the latter they were considered rare.

In North Dakota there are historic records of cougars by both Maximilian and Theodore Roosevelt during the nineteenth century, but Audubon did not comment on them during his trip up the Missouri in 1843. In the early part of this century there are numerous reports along the Missouri and Little Missouri Rivers; Bailey (1926) reported a specimen collected in 1902 about 25 miles east of Williston, though as time went on most naturalists considered it to be extinct in that state. However, a plaster cast of a track was obtained in 1943 near the Missouri River, 50 miles south of the Saskatchewan border below Carnduff.

In the early part of the century both Fountain and Ingersoll wrote that the cougar ranged near to Hudson Bay. Ernest Thompson Seton recorded a number of cougars reported killed in Manitoba near the Saskatchewan border, the latest being in 1904. Soper (1961b) reports cougars at the foot of Turtle Mountain between 1921 and 1951, and also at Birtle in 1922 and Marquette in 1942, also in Manitoba. Preble (1908) reports tracks were seen by J. S. Edmonton about 1897 on Boiler Rapid and Grand Rapid on the Athabasca in Alberta.

The Bear Paw mountains of Montana are clearly visible from the Cypress Hills and creeks cross the International Boundary, which make a connection. A cougar was shot there in 1910 and is exhibited in Havre. The Milk River from the foothills of the Rockies connects that known cougar range to the Cypress Hills. An average of 43 cougar bounties per annum were obtained in Alberta up to 1947, though mainly in the mountains.

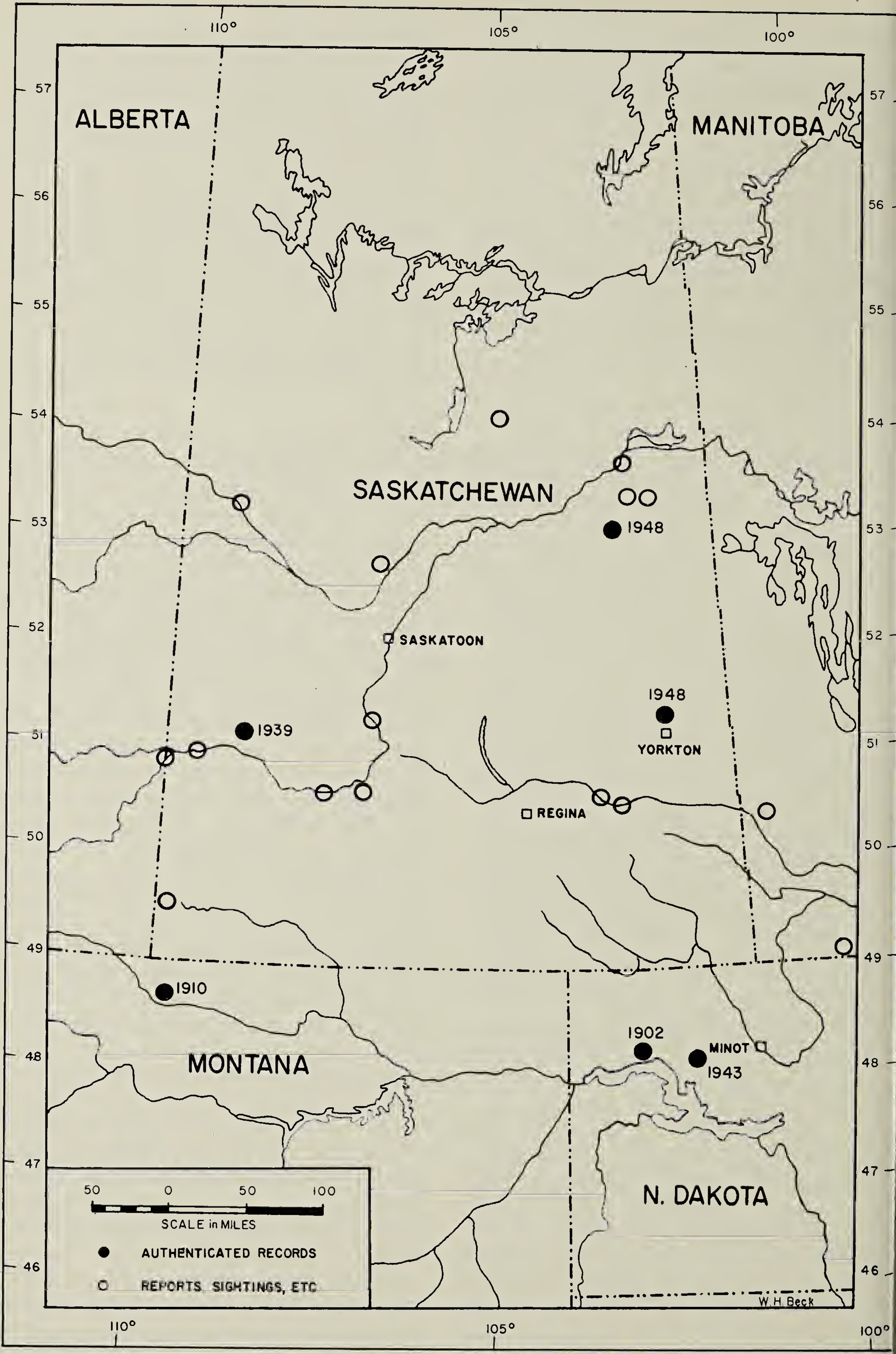
Bob Wilden of the R.C.M.P. said that a cougar was killed at Fort Walsh sometime before 1890. Bob Symons remembers Dumont, a relative of Louis Riel's Gabriel Dumont, who lived near Fort Walsh, saying that cougars were occasionally found in the Cypress Hills around the turn of the century.

Glen Meyers was working on a ranch near Empress, just inside the Saskatchewan border, when a cougar was killed in 1904 by M. J. More. The hide soon deteriorated but the tail was indestructible and stiff like a broom handle. It was kicked around for years, becoming a ranch joke, and was still there in 1918 when Glen left the ranch.

In 1906 Mr. Carter, the present mayor of Outlook, was berry picking on the South Saskatchewan River when he came up over a bank and looking across the draw saw a cougar in the branch of a tree looking him full in the face. He was familiar with cougars in British Columbia and after watching it for some minutes went to his buggy for his gun, but when he returned the animal was gone.

In December, 1911 Hector McCrae and George Parsonage were hunting for deer in the Cypress Hills near Fort Walsh. They came over a rise and saw a cougar which they shot. They made a bad job of skinning it and only got $10.00 from a local rancher, Mr. Massonage, although they could have received more than double that if it had been skinned properly. The skin remained at the ranch until recently. George Parsonage was killed in the trenches of the First World War but Hec, now in his 70's, claims to be the last man to shoot a cougar in that part of the world. However, when Bob Symons ranched in the Cypress Hills in 1914 he knew Jim McGary, the first Game Warden in the area. Jim had a cougar skin in his log cabin which he had recently shot nearby.

In 1912 Dave Santy hitched up his wagon at Herbert and drove across the prairie to where there was a ferry that would take him across the South Saskatchewan River. This ferry was operated by a Squaw man who also



Cougar records and reports for Saskatchewan and surrounding areas.

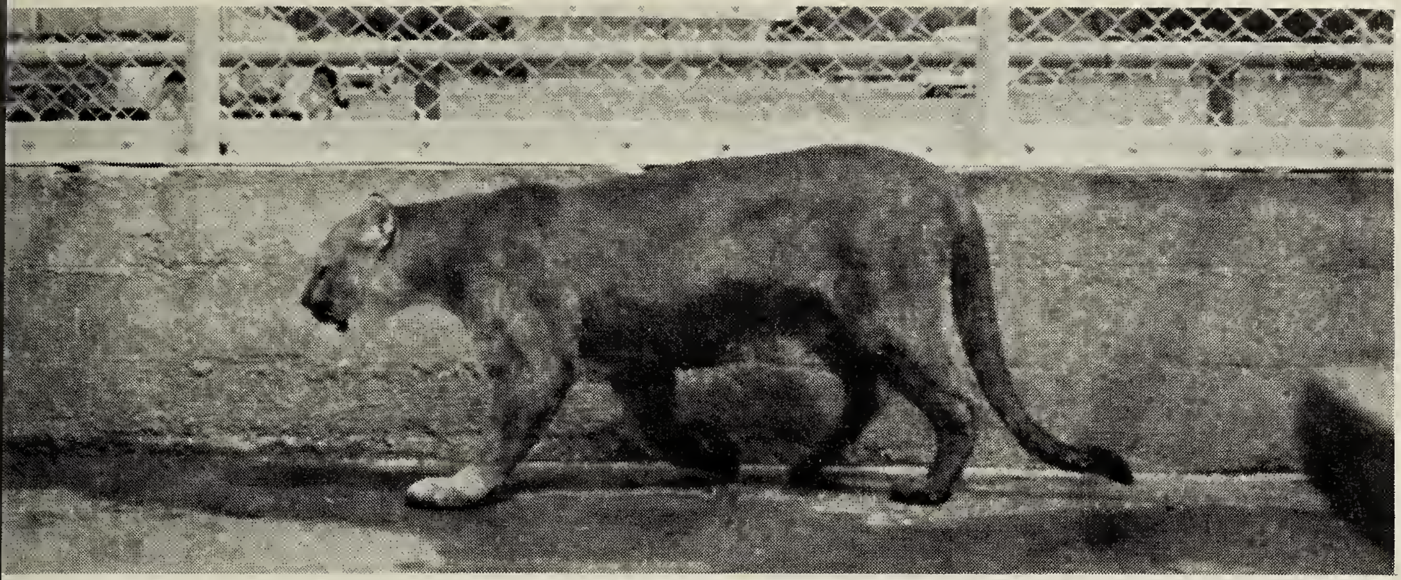


Photo by T. White

Captive cougar in zoo

trapped. Skins around the walls were representative of most of the animals in the general area, and the Squaw man said that he found cougars in the river valley occasionally.

In 1913 Ansgar Aschim, past president of the Saskatchewan Natural History Society and a forester, was riding in a democrat with his father by the South Saskatchewan River north of Herbert. They saw what appeared to be a wolf lying on the top of a hill, so his father dropped off the buggy and circled one way while Ansgar drove on and circled it from the other side. The wolf turned out to be a cougar, and his father shot it between the backbone and stomach. The cougar came towards Ansgar who, helped by his father, shot the animal. The size of the beast was quite frightening and the size of the tail was remarkable. Ansgar also says that there were reports of a cougar shot at Log Valley in 1923.

In 1919 at Blaine Lake there were many reports of a cougar. Mrs. Bould used to ride to her one-roomed country school on horseback, and found herself being followed by a large cat with a long tail which frightened the horse. It followed her, being occasionally seen as it passed between clumps of bushes. One evening the cattle panicked and the damnedest yells were heard in the neighborhood. The cougar was shot by a homesteader who was known as not being the most reliable of story tellers, so Mrs. Bould's parents laughingly demanded the proof. They were sent the paw, which was over four inches in diameter, unfurred on the underside and just like a great domestic cat's. People came from far and wide to see the dead cougar though in their area the lynx was well known. Several years ago a house was pulled down and in the studding was found a newspaper which showed a photo of the dead cougar. Mr. Fuchs, who owns the wildlife exhibit in Lloydminster and is a lifetime trapper, remembers the cougar killed at Blaine Lake and that it was a large tom. He also remembers that in 1911 he was hunting along the North Saskatchewan, 20 miles south of St. Walburg, when he came face to face with a cougar in a clearing in the bush at a 25-yard distance. At that time a number of colts had been killed nearby and there was talk of a cougar being around. Mrs. Bould was picnicking on the banks of the North Saskatchewan in 1921 with a friend from the Rockies who was familiar with cougars. There was a spine-chilling cry, which the friend said was undoubtedy that of a cougar.

In 1928 on a farm on the South Saskatchewan north of Leader, Glen Meyers heard his dogs barking wildly and so took his shotgun and went down near the river where a hen enclosure was built into the bank. He found that the dogs had put a cougar up on to a rise. It was standing with its long tail moving from side to side and snarling back at the dogs. Glen put two shotgun shells into the animal at 20 yards, and kept the skin for a number of years until a trapper who used to work the South Saskatchewan River bought it from him. The animal was thin and its belly was lighter than its top coat.

Mr. Kemp of the Hudson's Bay Company was fur trading in the Churchill River area between 1921 and 1929. At this time some of his most reliable Indians reported coming upon cougars periodically. The Hudson's Bay Company Archives indicate that in 1929 a cougar hide was traded to the Company in the northern half of the province, the exact location of which cannot be determined.

Joe Langlois was in the Qu'Appelle Valley north of Sintaluta when he came upon a cougar about 1929. He pursued it with a friend on horseback with two dogs. When they caught up to the cougar it turned and snarled and the dogs turned tail, whining, and Joe did not venture any nearer.

Fred Preece was trapping in the eastern Pasquia Hills around 1935 when he came upon large, deep cat tracks five inches in diameter. He was familiar with both lynx and wolf but these tracks were quite different and he is sure they were cougar tracks.

In 1937 Al Smith was driving a Model A Ford five miles west of Fort Walsh when he came upon a cougar on the road, accelerated and got quite near, obtaining a clear view before the cougar left the road. In the 1940's he saw a cougar in the field by War Bonnet Hill near Fort Walsh.

In 1939 near Madison, south of Kindersley, Harry Wahlgemuth was up in the early morning and saw a cougar circling the cattle pens. He got his rifle and shot it. The skin was obtained and reported by Clarke (1942). This record is included in Young and Goldman and is one of the two records where the skin was preserved and was recorded by a naturalist.

In 1940 Stanley Holloway was employed by the Department of Natural Resources, putting out forest fires in the country near the present site of the Squaw Rapids Dam. After putting out the fire, Stanley left the most elderly fire fighter to stamp out the last remaining ashes and came back to pick him up some days later. He came over the top of the hill in his truck and saw a cougar on the road. Stanley, who is President of the Nipawin Fish and Game League, is a crack shot and carried his rifle in the truck. He got a shot away just as the animal leaped from the road. He did not think he had hit it, but he went to examine the place where the cougar had been, saw a spot of blood, and found the animal dead at the bottom of the bank. It was a cougar, with its distinctive long tail, but because there was no bounty involved the skin was not taken. Stanley says that in the Pasquia Hills area in the period between the wars there were all kinds of trophies obtained, but they were not kept, though a number of his friends always said there was the odd cougar around. In 1923 Stanley lived in the Pasquia Hills and knew the cries of the wolf and lynx. Over a period of time they heard spine-chilling cries quite near their cabin which they could not recognize but subsequently believed were those of cougar.

In the 1930's Charlie Otterbein was a forester in the northern part of the Pasquia Hills and found no sign of cougar until the winter of 1938. Prior to this the local Indians had started talking of cougars but little belief was placed in their stories. In the winter of 1938 Charlie was walking along the ice of the Man River when he heard caterwauling and cries of a pair of cougars. He could not catch up with them but their tracks could be seen plainly upon the snow on top of the ice where they had been leaping along. Subsequent to this, he frequently came across cougar tracks in the western part of the Pasquia Hills, particularly around Cracking River. Charlie says that in 1940 some hunters brought in a dead cougar and had to pass the gatekeeper of The Pas Lumber Company, a man who had the reputation of being a reliable observer, and who described the long distinctive tail.

About 1942 Wilfred Rainville was walking through a stubble field near the edge of the Qu'Appelle Valley north of Wolseley. It was early morning and when he was nearing the edge of the field a cougar rose out of the stubble and stood looking at him. After a minute it loped away towards a coulee where some rye was uncut, and when it got to the other side of the rye it stood up on its hind legs and looked back before disappearing. Mr. Rainville stepped out 40 steps as the distance from which he first sighted the animal and found the stubble was crushed where it had been lying. Mr. Rainville says it was unquestionably a cougar.

Jim Cloutier came from Rocky Mountain House to the eastern Pasquia Hills in the late 1940's. Jim was familiar with cougar from the Rockies and came across some deer carcasses which had been skinned out the way that cougars kill, but at that time did not think there were cougars in the area.

In 1948 there were reports of a cougar north of Yorkton and, acting upon this information, the R.C.M.P. made an investigation and obtained a plaster cast of its track which was subsequently authenticated.

During the winter of 1948 Carl Heaney was trapping in the Wapaweka Hills near Little Bear Lake. His dog sled was moving over the snow when the dogs began frenzied barking and became very wild. He found large, round cat tracks which were deep and distinct and not those of the lynx, which he had trapped and was familiar with. The dogs increased their speed and after some distance they caught sight of a cougar which managed to outdistance them by going in a different direction.

The winter of 1948 Joe Fournier, a trapper who obtained many of the specimens in the Saskatchewan Museum of Natural History and who is noted by naturalists who have worked with him as a highly observant and accurate fieldman, was moving along his trap line near Connell Creek in the Pasquia Hills with a horse and ski buggy when he noted that a kind of wolf was following him, but it did not walk in the way wolves normally do. He set a wolf trap and when he came to inspect it a week later he found the green eyes of a cougar looking at him. He killed it with one shot of a .22 and then brought it to Regina where it is exhibited in the Saskatchewan Museum of Natural History. Joe says that when the animal was in the trap another cougar had visited it, and that in the following years he has come across other cougar tracks as well as deer killed by cougars.

From 1948 onwards, the records of people who claim to have seen cougars are much more numerous and widespread, and the impression of the writer is that the turning point in the cougar status was in the late 1940's, and that at this time it changed from being an extremely rare animal and began expanding its range. When Joe Fournier saw that another cougar had visited the one he had trapped, the resurgence of the cougar was under way in Saskatchewan.

LITERATURE CITED

Anderson, R. M. 1946. Catalogue of Canadian recent mammals. Bull. Nat. Mus. Canada, 102.

Bailey, V. 1926. A biological survey of North Dakota. N. Amer. Fauna, 49.

Beck, W. H. 1958. A guide to Saskatchewan mammals. Spec. Publ. 1, Sask. Nat. Hist. Soc.

Cahalane, V. H. 1964. A preliminary study of distribution and number of cougar, grizzly and wolf in North America. New York Zoological Soc., New York.

Clarke, C. H. D. 1942. Cougar in Saskatchewan. Can. Field-Nat., 56 (3) : 45.

Preble, E. A. 1908. A biological investigation of the Athabasca - Mackenzie region. N. Amer. Fauna, 27.

Seton, E. T. 1929. Lives of game animals . . . 2. Doubleday & Co., Inc., Garden City, N.Y.

Soper, J. D. 1961a. Field data on the mammals of southern Saskatchewan. Can. Field-Nat., 75(1) : 23-41.

——. 1961b. The mammals of Manitoba. Wildlife Mgt. Bull., Can. Wildlife Service, ser. 1, no. 17.

Young, S. P. and E. A. Goldman. 1946. The puma, mysterious American cat. Amer. Wildlife Inst.

Junior Naturalists

Edited by **Joyce Deutscher,** 7200 6th Ave., Regina

Drawing of a porcupine by Liane Nielsen, age 9, Star Butte School

OUR FIELD TRIP ON MARCH TENTH

by **Liane Nielsen,** age 9, Star Butte School

It was a frosty day about five above. The sky was overcast and the sun shone so dimly it was difficult to see. The wind was calm. Weeds, bushes and trees were frosted. We walked down the road and then cut across the pasture. The snow crackled and crunched under our feet.

When we got to the bush we found a porcupine in a willow tree. He was frightened and clung tightly to the branches. We had quite a time getting him down. He climbed from one willow tree to another and finally fell with a thump to the ground. Then we tried to get a plaster cast of his tracks. After we did this we left the porcupine curled tightly in a ball at the foot of the tree.

RICHARDSON'S GROUND SQUIRREL BEHAVIOUR IN CAPTIVITY

by **Dixie Hobbs,** age 10, Star Butte School

One day we caught two gophers and brought them back to the school. There we put them in a box. We wanted to keep them until they had little gophers but later we found out they were both males.

We kept them in a box that day. The next day we brought a cage into the classroom and put the gophers into it. They kept climbing up the bars to get out. We fed them oats. They sat on their hind legs and nibbled the oats. Once when we were putting one back into his cage he spit out a lot of oats that were in his cheeks.

We fed them oats, orange peel and chocolate bar. They really liked the orange peel. They were noisy and kept squeaking around their cage. We put a box in their cage and they stayed in it most of the time. We could watch them clean themselves. They sat down like a cat and scrubbed themselves much harder than a cat ever would.

I liked watching them and learned a lot from them. We let them go on the third day.

TAME MAGPIES

by **Ronald Nickel**, Carrot River

A few years ago my brother and I were walking in the bush and we saw a magpie nest. I climbed the tree and looked into the nest and saw some eggs. We went to the nest a few weeks later and saw the eggs had hatched. After the young magpies got larger we took two of them home. We fed them bread soaked in milk.

They soon learned how to fly and became very tame. We gave one magpie away but the other stayed with us all summer. In the fall it flew away and we have not seen it since.

CABBAGE BUTTERFLY IN BASEMENT

by **Colette Isinger**, age 8, Yellow Creek

On April second I found a cabbage butterfly in our basement. Dad and I looked at it and measured a wing span of one inch. The upper side of the wing was white. The underside was light yellow. Each wing had four black spots. Over the winter we had cabbages in the basement. We think that the eggs hatched there.

TREE CROSS-SECTIONS IN CLASSROOM

by **Ellen Kuz**, age 12, Yellow Creek

In our room we have a cross-section of a tamarack, white birch, black spruce, black poplar, balsam fir, jack pine, white poplar and white spruce.

We got these cross-sections from the Department of Natural Resources, Forestry Branch, Prince Albert.

MOUNTED BIRDS IN CLASSROOM

by **Delmer Dutka**, age 12, Yellow Creek

We have three mounted birds in our classroom. There are a Mountain Bluebird, Baltimore Oriole and a Starling.

Gary Oleksyn brought the bluebird and the oriole to school. Gary's mother found the bluebird dead in a granary. Gary's father hit the oriole while driving. Mr. Isinger shot the Starling. The birds were mounted by a taxidermist in Saskatoon.

UNFORTUNATE RED-TAILED HAWKS

by **Derwent Mazur**, age 15, Yellow Creek

Last summer I observed two Red-tailed Hawks' nests that had unfortunate hatches. One of the nests had four eggs, two of which hatched successfully. The reason the other two did not get a chance to hatch was because of heavy rains which caused one side of the nest to fall down, thus tilting the nest. The two young and the two unhatched eggs rolled out. The eggs were broken and the young killed. The parents then left the nest permanently.

In the second nest there were two eggs. Both eggs hatched. I didn't visit the nest for a few days, and when I returned there was only one young left. The second young was successfully raised into an adult, the only bird to be raised out of a total of six eggs in two nests. This is why our Red-tailed Hawk should be protected.

NOTES AND COMMENTS

Nature enthusiasts from Yellow Creek again sent in a selection of notes and nature observations. Gary Oleksyn reports that he actually took chase after a red fox but lost sight of it. He feels certain though that the fox came back later for a chicken dinner.

Bob Oleksen took the time to draw the tracks of a white-tailed jack rabbit and to tell about identifying it.

Liane Nielsen, elsewhere in this section, mentions making a plaster cast of animal tracks. We wonder if Bob has thought of doing this as well as drawing the tracks.

Flocks of redpoles were observed by Rosemary Nemeth. She tells us they find seeds and other good things to eat in front of their house.

Colleen Shewchuk had the good fortune to see a porcupine walking all hunched up back and forth across the road. However when it saw the car it decided to head for the ditch.

Bird watcher Deborah Gingara saw a Horned Owl when she was out bike riding. As soon as she got home she started looking up information on it.

Two Snowy Owls were seen by Elsie Nemeth while on a drive to the city. We might remind Juniors that it is a good idea to keep track of the date and place where you see things. Who knows you might just happen on some information which is wanted by someone keeping records of birds and other animals. Perhaps the Snowy Owl you saw was the last one to be seen in the spring and so we have a late migration date for that bird. Also, for your own information, you might want to refer back to your notes to see when you saw certain things.

One of our younger members from Lac la Ronge, Lynn Ernst, wrote a delightful note which she calls "The fish that just about pulled me in". This is her story with its original spelling and punctuation: "Ones i cought a pike And I frust abrout fell in my mom came to help Me and stumbiled over fishline and thene got up and helped me pull him in. She was full of bruses and sckraped on her nease and albose".

Stan Checkel from Coronation, Alberta, describes a bird he was unable to identify. It was seen picking over gravel with a large flock of juncos and tree sparrows. The bird had grey tail and wing feathers, light grey to white abdomen and shoulders, black splotches on the back of its head and back. The underpart of its tail was white and its beak pinkish like a junco's. It was about the same size as a junco.

And that just about sums up Junior activities for this time. I wonder as I sit here sipping my Labrador tea what plans you have for summer. Certainly when I gathered Labrador tea leaves in the Flin Flon area last summer I had no Idea I would be sitting here sipping tea made from them as I read over your letters. If you happen to be strolling through a patch of Labrador tea this summer why not pick a few leaves and dry them? Then sometime in the middle of next winter you can take a teaspoon full of leaves, pour boiling water over them, let steep for a few minutes and then take a sip or two as a reminder of the green woods of summer. And that reminds me, I had my first taste of wild onion for this year on April 30. What wild plants have you been nibbling recently?

Letters, drawings and photographs for the Junior Section should be sent to **Mrs. Joyce Deutscher**, Junior Editor, 7200 6th Ave., Regina to arrive not later than July 15 for inclusion in the next issue of the **Blue Jay.**

NOTE TO JUNIOR NATURALISTS: Frequently articles and stories are submitted by adult contributors that have something of special interest to juniors. Two such stories are printed here so that Juniors will not miss them.

A YOUNG ANTELOPE PET

by **Dave Santy,** Beechy

It was early one morning when Davie Gray set out to spot cattle on his ranch. There was still the cold tang of spring in the air. Trees were budding into leaf and baby calves were being born. There were many predators about to harass them; Davie kept records and where necessary would move mother and offspring to more protected quarters.

Later in the day, having checked the cattle, he headed the horse for home. He hung the reins on the saddle horn and gave the animal his choice of route. As he rode, he was rudely awakened from a reverie when his horse almost pitched him out of the saddle. The horse had taken an animal path through a clump of buckbrush and something had frightened him. Still thinking of the cattle and that there might be a calf there, Davie urged the horse back through the buckbrush. About midway the horse came to a stop and the rider looked down on two newly-born baby antelope. There was no sign of the mother, so he dismounted. He could not resist the desire to pick one up in his arms, climb onto the saddle, and go for home. As the horse started to move, the little fellow gave out with a bleat that caused the horse to buck in an endeavour to shake them both off.

The Gray ranch buildings are in a good sheltered grove on the first bench down from the top land level. There are many such thickets here that continue down to the South Saskatchewan River about three miles distant. It is scenic territory and habitat for much of the wildlife which can withstand the rigours of Saskatchewan winters. Near here members of the Saskatchewan Natural History Society camped in June 1964 for their annual outdoor meeting.

Upon arrival at the ranch buildings, "Bucky" was adopted at once, and Mrs. Gray prepared a feed formula. He was at once one of the family, and became very much at home. Never was he held under restraint, but never did he stray any distance from the buildings. He loved people and would play with children as one of them. For a time in the summer, 18-month-old Marilyn came to be with her grandparents, and Bucky immediately took over as her guardian. They romped together continually. At times he would give a demonstration of speed, and when she responded with a hilarious laugh, he would be off again. He really was a show-off!

If Grandma missed them for a time, she would call for Bucky and he would soon appear, herding Marilyn, often nudging her into direction. Marilyn would hold the feed bottle for him. When she considered it her turn for a draught, he would refuse to give it up till she screamed at him.

"Bucky" had many visitors.

In the early fall a fire from one of the buildings spread into the trees to the east. The teen-age daughter, Helen, rushed from the house, calling for Bucky. She ran along the edge of the fire, continuing to call. About a hundred yards or so from the buildings, an antelope streaked ahead of the conflagration, passed Helen and carried on down the hills. It paid no attention to Helen's calling, and she returned sadly down-hearted. She told her mother that Bucky had been so badly scared that he would never come back. Her mother assured her that Bucky was safe in the house. He had answered Mrs. Gray's first call and had come in from the west.

In the winter, Mr. and Mrs. Gray spent a few weeks with their married daughter in Calgary, and returned to find Bucky dead. During their absence the ranch chore one day was grinding grain for feed. Bucky had been around the mill, constantly licking the fine powdered grist of the mill, and this was probably his undoing. Such seems to be the fate of so many of the animals of the wilds we think we are befriending.

"PLASTIC SURGERY" FOR A CROW

by **R. D. Thompson**, Wisconsin

The appearance of a red-winged crow would cause a mild sensation in any area among bird watchers and non-bird watchers alike. And it was no exception when such an apparition turned up in my home town in Wisconsin.

However, this was no freak of nature — but the result of a 14-year-old boy's life-long fascination with wildlife, a budding interest in photography and an insatiable appetite for model aeroplane building.

After observing and trying to make a picture sequence of young crows, I had succeeded in getting shots of the nest building and the eggs, and was attempting to get near enough, amid the loud protests of the parent birds, to take pictures of the nestlings. My movement startled a young but fully feathered crow on the ground near by. He had been ejected from another nest, and still couldn't qualify for sustained flight. He was easily captured and I proudly carried him home. Fortunately, I had a patient mother, who by this time had been conditioned to accepting most anything into the house that crawled, loped or flew, and it wasn't too difficult to convince her that this fellow was needed to continue my photo study of crows.

Realizing that he would soon be capable of full flight, I clipped the primaries and a few of the secondary feathers on his right wing in order to keep him grounded. In my inexperienced haste to accomplish this, I clipped the feathers far too short and as a result the poor crow, who by this time had acquired the name "Fagan", could not keep his balance on a perch and would invariably end up hanging head down.

Having inflicted an almost insufferable indignity on him, I felt responsible for rectifying it. Remembering the freshly killed carcass of a Red-tailed hawk I had found a few days previous, I returned to find it still there. After carefully removing the primaries and secondaries from the right wing, I took them home and brought into play all the skills of a 14-year-old model aeroplane enthusiast.

The stubs of the feather shafts were still in the crow's wing, of course, and it was relatively easy to insert a new feather into the hollow stub of the old one. I remember painstakingly matching and making sure the hawk's feathers were inserted at the proper angle. When certain I had a good match I cemented them in place with aeroplane glue and wound the shaft with fine thread.

I took him outside and launched him, with some hesitation, half expecting him to fall to the ground in a hopeless tangle of feathers. My fears were groundless. He sailed from my hand, gained altitude, circled as if making tests of his own and came in for a landing on the ground nearby.

I think his freedom was guaranteed from that instant, and though he was not confined again he remained for a time, flying around the neighbourhood and generating no little interest.

He flew off finally, as all wildlings do if given the choice, and I am sure that mother nature saw to an eventual, more conventional wing replacement.

JUNIOR NATURALISTS

I have been pleased to note that the children's section in the *Blue Jay* has been continued and I would like to see it expanded to include articles of especial interest to young folk.

A few months ago I was in the Hinsdale area, Montana and had the delightful experience of calling at a rural school, and talking to the teacher and her pupils. Before I left I invited them to take out a school membership in the SNHS. Which they were happy to do. It made a difference to be able to tell them that there was a section in the publication especially for young people and that they could write and tell of their class expeditions and their discoveries in nature.—*Ruth M. Chandler*, Shaunavon.

The Blue Jay Bookshelf

ILDLIFE HABITAT IMPROVE- ENT. By Joseph J. Shomon, Byron . Ashbrough and Con D. Tolman. ketches by Ned Smith, diagrams by obert F. Holmes. 1966. National udubon Society, 1130 Fifth Avenue, ew York. 96 pp. $2.50.

The Saskatchewan Natural History ociety recently received a compli- entary copy of this bulletin, sent to s by the Canadian Audubon Society ith which we are affiliated, in the elief that it could be of help to clubs cting collectively or to individual embers who wish to improve land nd water areas for wildlife. While ome of the subject matter pertains to onditions and species found only or ainly in the United States, the basic rinciples of habitat improvement utlined in the book apply equally to anada.

In the *Foreword*, Ira N. Gabrielson, resident of the Wildlife Manage- ent Institute, congratulates the ature Centers Division of the ational Audubon Society for pro- iding planning services on nature entres and for preparing this manual n what and how things should be one. He points out how important it s that the government's national olicy of creating parks, forests and ildlife refuges be supplemented by fforts on the local community level. e knows that "tens of thousands of hildren have never seen a green hill- ide or known a ruffed grouse, and ach day the opportunity for them to o so becomes further removed," but e believes that almost any city or own has the potential to do some- hing about this. The National Audu- on Society's guidebook is obviously n attempt to offer encouragement nd practical help to communities and ndividuals interested in this vital ask.

The chapters deal with elementary rinciples of wildlife management and abitat improvement for birds and ammals, and with the application of these principles to homesites and special areas. Sketches and an eight-page insert of photographs make the bulletin attractive. Both the discussions in the chapters and the 60-point summary of measures that organizations or individuals can take to improve wildlife habitat in their area, have of course a limited application for us on the Canadian prairies, and even where the recommendations are applicable we must accept the fact that they are not always economically feasible for the small farmer.

Copies of the book may be obtained from the Canadian Audubon Society, 46 St. Clair Ave. E., Toronto 7.—*Margaret Belcher*, Regina.

PLANTS OF BOTTINEAU COUNTY, NORTH DAKOTA. By Dr. A. O. Stevens. 1966. North Dakota State University Institute for Regional Studies, Fargo, N.D. 37 pp. Free on request.

This brochure represents another publication added to the many natural history studies from this author. Since the county studied borders 60 miles of Saskatchewan and Manitoba, it is of interest to our prairie residents. Most of this county is prairie and its plants are similar to those on the Canadian side of the border, and the wooded growth is comparable to that of southern Manitoba.

The brochure contains a check-list of plants collected over the last 50 years by the writer, Emeritus Professor of botany, North Dakota State University Institute for Regional Studies, Fargo, N.D.

The added historical background, description of physical features, and comments on the character of the flora make a valuable addition to the available information on this area.—*Elizabeth Cruickshank*, Regina.

THE ELK. By John Madson. 1966. Conservation Dept., Olin Mathieson Chemical Corp., East Alton, Ill. 125 pp. Illus. $1.00.

"Long ago, man and elk made a mutual decision that elk do not belong in crowded farmlands or suburban woodlots. It was one of those rare deals in which wildlife came out ahead. Man still lives in his teeming warrens and congested countrysides, while today's elk is a successful exile in two broad American ranges that are unequalled anywhere on earth for sheer wild splendor."

With these words Mr. Madson begins his very interesting booklet on the elk, or *wapiti* as our American elk should be called. The name wapiti, a Shawnee word meaning "white deer", has been used since 1806, but is not as commonly used as the name elk. By whichever common name it is called, the species is scientifically recognized as *Cervus canadensis.*

This monograph is well illustrated with numerous photos and drawings, and supported with an extensive bibliography. Those interested in the deer family will find it an appropriate addition to their library.—*Anthony J. Hruska,* Gerald.

DO YOU KNOW? Exploring nature around Prince William Sound, Alaska. By Cecil Lee Shumaker. 1967. Exposition Press, New York. 82pp., illustrated by the author. $3.50.

The little book, *Do You Know,* by Cecil Lee Shumaker, is a collection of short essays on familiar subjects that raise questions in young minds. The area, an out-of-way place, provides a variety of subjects for discussion. The subjects, including whales, mosses, mosquitoes, bats, fungi, sealions, and birds, may be large or small.

Recording experiences met in day-to-day living, the author raises questions which she answers in easy-to-read style. The booklet is written especially for children. The illustrations, line drawings by the author add to the pleasure derived from the book.

Mrs. Shumaker and her husband operated a blue fox and land otter ranch in Prince William Sound Alaska.—*Elizabeth Cruickshank,* Regina.

CYPRESS HILLS PLATEAU. Guidebook of the 15th annual field conference of the Alberta Society of Petroleum Geologists. Part I—Technical papers, ed. by R. L. Zell, 288 pp.; Part II—Program, geological road logs and maps, ed. by Irmgard Weihmann, 22 pp. 1965. Available from Riley's Reproductions Ltd., 631 - 8th Ave. SW, Calgary, Alberta. Part I, $5.00; Part II, $2.50.

These two paper-bound volumes were issued as handbooks to a field trip to the Cypress Hills in September 1965 sponsored by the Alberta Society of Petroleum Geologists. The area covered in their principal geologic map is Twps 1 to 11, Ranges 19 W 3rd to 8 W 4th, that is from the Trans-Canada Highway south to the U.S. border and from Eastend west to Milk River Canyon. The work is oriented to the professional geologist; yet, upon acquiring a copy, I felt that it has much to teach general naturalists, especially those that know and love the Cypress Hills. For this reason I would like to let the readers of the *Blue Jay* know about this collection of information.

"Part I, Technical papers" consists of 23 separate essays on the geology and natural history of the Cypress Hills. These are of very unequal interest to the general naturalist. I can here try only to give an idea of the subject matter of each paper; space forbids much of a discussion on any one.

These papers have been arranged by subject matter into five groups each containing from two to six papers.

The group of Introductory Papers egins with a contribution from R. W. andes covering briefly the history of eological exploration in the Cypress ills area and in more detail the istory of the disposition of mineral ghts and of oil and gas production the area. M. Y. Williams then takes o the story of the history of geological exploration of the area through a terature survey of all major geological reports dealing with the Cypress ills, in which the conclusions reached y each geologist are quoted as much s possible in his own words. W. B. allup, under the title, "Plateau of mpire", then traces the ordinary or vil history of the Cypress Hills from 801-2 to 1882. To the Hills first came eter Fidler's pitch-gathering parties; en the Palliser expedition, then the merican whiskey traders of the 860's. These people's Indian-killing roclivities obliged the Canadian Govrnment to send west the N.W.M.P. hrough the establishment of old ort Walsh by the Mounties in 1875 e area was held for Canada until e coming of the C.P.R.

The next group "Recent Biotia of e Cypress Hills Plateau" includes nly two longish papers, but *Blue Jay* eaders will find them perhaps the ost interesting. S. R. Halliday gives s "A General Survey of the Natural istory", with most emphasis on ammals and birds. In "Some Paricular Aspects of the Biotia of the ypress Hills" Bruce McCorquodale formerly with our Saskatchewan Mueum of Natural History) discusses e oddities of the fauna and flora. He oints out that the forms found in e area whose main range lies further outh, such as the yucca, the rattlenake, the horned lizard, and the sage rouse, find habitats in the low hot ountry at the foot of the Cypress ills; while the life-forms unusual to lains residents that are found in the igh cool wooded hills proper are ordiary Rocky Mountain species; and urthermore, the fact that the top of he Cypress Hills was unglaciated has othing to do with the present flora nd fauna.

The next group of papers on "Land Forms and Pleistocene Geology" is tougher going for the field naturalists, but will repay study to those who marvel at the topography of the Cypress Hills. C. H. Crickmay, in discussing the land forms of the area, points out that the Cypress Hills are in fact a flat topped plateau. The top of the plateau, or "Main Bench", is a geologically old land surface with its own shallowly incised drainage pattern upon its face. Erosion of the plateau is taking place not by normal river erosion upon its surface, but by crumbling of the resistant cliffs at its edge. A. J. Broscoe gives an account of the development of the landscape forms (geomorphology) of the Alberta Cypress Hills and the country from there south as far as Milk River. J. A. Westgate gives a formal discussion of the glacial geology (Pleistocene deposits) of southeastern Alberta. W. O. Kupsch has a small item upon boulders lying cracked in gravel pits near Dollard, believed to be caused by stresses exerted by flowing ice. A. MacS. Stalker performs geometrical calculations from the altitudes of unglaciated highlands in the south of Alberta and Saskatchewan and gets the position and gradient of the Laurentide ice sheets in the area. He finds a good deal of southeastward motion to the ice sheet in our area. As he points out, the existence of the famous driftless area at Rockglen, Saskatchewan, cannot be understood without assuming mainly southeastward flow.

There next follows a group of six papers on "Surface Palaeontology and Stratigraphy"—a mixed bag. Here L. S. Russell enumerates the locations for naked-eye fossils in the Cypress Hills area. W. A. Clemens describes a technique for wet screening small vertebrate bones out of soft rocks, which helps with the study of the small and hard to find Cretaceous mammals. Next J. A. Vonhof gives an important paper showing that much of what looks to the eye to be quartzite gravels similar to the Cypress Hills formation (of Oligocene age), and which had earlier been included in this formation in geologic maps, is in fact younger. Such material has been eroded off the Main Bench and redeposited at lower levels to make up what he has named "Redeposited Cypress Hills Formation". In the past I have wondered about this matter myself. I remember climbing to the bench level a few hundred feet up from where Highway 21 crosses the Frenchman River just east of Cypress Lake, to stand on cobblestones which the geologic map marked as "Cypress Hills Formation". Yet hard to reconcile with this was the fact that away off to the northwest some 8 or 10 miles rose the Main Bench (Provincial Park area), some 500 feet higher, also capped by cobblestone conglomerates of the Cypress Hills formation. The dip of this Cypress Hills formation in the Park area, so far as one could judge by geological reports and one's own eyes, was neither steep enough nor southerly enough for the two cobblestone gravels to be part of the same bed without some marked folding. I concluded that the solution of the problem was beyond me, but it is now plain what was going on; the cobbles on the lower bench were redeposited material.

Also in this group is a paper by R. A. Folinsbee and others about absolute dates in years obtained from Bearpaw shale outcrops by a radiochemical method; a rather technical discussion by J. R. Patterson on just where the Cretaceous-Tertiary (Age of Reptiles to Age of Mammals) transition ought to be drawn in our area and a description of the exposed Cretaceous formations of the Cypress Hills area by M. B. B. Crockford and W. A. Clow. This last paper should be read before the others of its group as a first meeting with the formations of the area. It would have served this purpose better still had its authors included a similar review of the exposed Tertiary beds above the Cretaceous ones.

The last group of papers is of lesser interest to the field naturalist. M. O. Fuglem outlines the oil and gas reserves of the Cypress Hills area. L. O Lindoe describes the ceramic clays o the area; this paper should be note at it contains a description of th exposed Tertiary strata, not treate elsewhere in this volume. J. D. Campbell treats of the coal resources of th area. The volume closes with fou papers on the subsurface structure Here J. E. Christopher writes on th Jurassic, D. M. Kent on the Devonian H. van Hees on the Cambrian, and R A. Burwash on the Precambrian, o the area. As these rocks are deepl buried, the papers do not concern th field naturalist.

In the pocket of Part I are fou maps. One is to accompany Vonhof' paper, showing what outcrops o seeming Cypress Hills formation ar in fact redeposited. Another is a larg but not very clear composite air phot of the Alberta half of the area t accompany Broscoe's surface geomorphology (land forms) paper. Th other two are large illustrations fo the subsurface structure papers.

"Part II: Programme, geologica road logs and maps", is a much thinner volume. Most of it is occupied b geological road logs compiled by T. P Chamney for their field convention that is, for every route the buse were to follow, there are given directions, mileages, and descriptions o the interesting geological sights alon the way. In one day they were to visi Fort Walsh, Bald Butte, Eastend, an Ravenscrag Butte; the second da they were to see Eagle Butte, Elkwater Lake, Lodge Creek, and th Milk River Canyon. They must hav been really moving!

A brief description of the expose geological formations and a list o references to the geology of the Cypress Hills area were contributed t this volume by E. J. W. Irish. Thes refer to and explain the large, coloured, more or less contoured geological map of the area (scale 1 inch to miles approx.) to be found in the bac pocket of the booklet. The route described in the road logs have als been plotted onto this map. By mean f Part II, then, one can then find the ay to many of the points of interest ı the Cypress Hills, even if one were nfamiliar with the country beforeand.

I have given a rather complete ccount of the contents of this work, so that the *Blue Jay's* readers may make up their own minds about whether they would like this publication. For my own part, I shall take my copy along the next time I am visiting the Cypress Hills.—*John H. Hudson,* Saskatoon.

Letters and Notes

BSERVATIONS OF WATERFOWL ND SHOREBIRDS NEAR ELVINGTON IN 1966

During the summer of 1965 about 7 inches of rain fell in our local area Township 36-12-W2, approximately even miles southwest of Kelvington). ecause of this and a snowfall of early four feet the following winter 965-66 the water level was very high. loughs and lakes were very full and emained so for most of the summer f 1966. Runs between bodies of water ere more active than they had been ince the wet 1950's. As a result, diferent species of birds and larger umbers stopped in the area than ave done so in recent years.

One of the species which was prevaent was the Common Snipe. The first nipe were seen on May 4, when two ocks of seven and eight were sighted. hey were seen off and on during the eason and probably nested. Flocks of 5 were seen on September 11 and 17 n September 24. The last bird was een on September 30.

We always have a few flocks of histling Swan pass through in pring migration; in 1966 we had ore flocks, though these were not ery large. The first flock was noted n April 25. It contained 25 swans. igration was further noted on April 0, May 4, 6, 7, 8, 10 and finally ay 11.

We were surprised on April 25 to bserve a Common Loon on one of the eadow Bank lakes (located five iles west and three miles south of elvington). These lakes are about ½ miles long and a few hundred ards wide and contain no fish and very little other aquatic life. A loon was seen again on June 5.

Other interesting spring migrants were Pectoral Sandpiper (May 19), Northern Phalarope (May 29), Whimbrel (May 29), Black-bellied Plover (June 1) and Baird's Sandpiper (75 seen on June 2). Waterfowl observed were Canada Geese, Mallard, Gadwall, Pintail, Green-winged Teal, Blue-winged Teal, American Widgeon, Shoveler, Redhead, Canvasback, Lesser Scaup, Common Goldeneye, Bufflehead, Ruddy Duck, and American Coot.

Large numbers of ducks were present during the breeding season. The most interesting was the **Bufflehead** which was observed regularly during May. Then to our surprise on June 28 a female and seven young appeared on Meadow Bank Lake. This is the first **breeding record** that I know of in the area.

Horned Grebes were very common throughout the season and seven nests were found. Soras were common, and Wilson's Phalarope were also believed to breed.

There was not a mass movement during the fall migration; no large flocks of ducks came in from the north, and few geese and cranes. Interesting migrants were a Great Blue Heron (September 20), Spotted Sandpiper (August 10), and a Black-bellied Plover (September 3). A flock of 400-500 Mallards, Pintails and Blue-winged Teal—probably raised locally—congregated on Meadow Bank Lake from September 8 to October 19 and a local flock of 350 American Coots gathered about September 30.—*Brian Irving,* Kelvington.

SUGGI LAKE PELICANS, 1960

In view of the interest in the Suggi Lake White Pelican colony *(Blue Jay,* 24:96-97, 121-123), it may be of some value to record a count of adults and presumably young which I made from a color slide taken from the air on September 1, 1960 by Walter Hlady. This photo, taken of the island and from some height, shows a large flock of pelicans lying offshore and a few others in flight; in all, 528 were counted. This count is probably a little low, for some birds may have been obscured by others, but it provides at least a minimal count. It also accords well with the figure of 500 adults and young observed in the same place by Elmer Fox in 1959. In 1964 there were at least 932 adults, judging by Dr. Stuart Houston's count of 466 nests. This rapid increase may have been due to an influx of pelicans from breeding sites to the south and west which showed a decline during the drought years of the early sixties (*Blue Jay,* 20:74-77, 112-114). — *Robert W. Nero,* Manitoba Museum, Winnipeg.

PRAIRIE CHICKEN AT OLD WIVES LAKE

On September 3, 1961 my father, J. E. Pratt, and myself observed five grouse that we believed to be Greater Prairie Chicken along the cutbanks on the east side of Old Wives Lake. The short tail and bars across the breast were the basis of our identification.—*Connie Pratt,* Regina.

PRAIRIE CHICKEN AT MARCHWELL?

On February 16, 1967, a flock of about a dozen birds, which we took to be prairie chicken, alighted in our yard. They were not sharp-tailed grouse or Hungarian partridge, with which we are familiar. These birds had short tails and appeared more sleek, plump and streamlined than the sharp-tailed grouse, but were about the same color and size, perhaps even slightly larger.

The birds stayed for a couple o minutes and then took off, but w have seen them in flight near ou house two or three times since. March well is about five miles west of th Assiniboine valley.—*Mrs. Gilber Johnson,* Marchwell.

COMMUNAL NESTING OF HOUS SPARROWS WITH BIRDS OF PREY

On July 27, 1962, when banding a Swainson's Hawk nestling, I was only mildly surprised to flush a female House Sparrow out of her bulky nest jammed into the bottom of the hawk's nest. Many years previously I had observed a Red-tailed Hawk and a Tree Swallow raising their families in harmony in the same tree; the Swallow's nest hole was about 10 feet below the hawk's nest. Also I had been noticing that the House Sparrows had been spreading out from the farm buildings and nesting in windbreak trees. In this case, while about 50 rods from the farm yard, the nest was adjacent to the winter cattle feeding area and House Sparrows were noted there during the winter. This nest was about 28 feet up in a poplar tree in a native poplar and willow grove and on examination was found to contain four young. On several later occasions I observed through binoculars the female House Sparrow flying back and forth feeding at the same time as the dark-coloured female Swainson's Hawk stood on the edge of her flat-topped nest tearing fresh game apart for her young one.

On May 25, 1963, while banding Great Horned Owls, I discovered a House Sparrow's nest in the bottom of a second-hand nest the owls had used. The nest contained five sparrow eggs and was about 40 feet up in a large balm of gilead tree. The young owls were gone but both parent owls were nearby and one young one was soon located and banded. In this case the nearest farm buildings were at least a mile away.

In 1965 on April 16, a Red-tailed Hawk was seen working at an old w's nest in a poplar grove and was en in and around this nest several mes afterward until the leaves came t. In June while banding I checked e nest site and found it was made dy to use, even to the customary een leaves in it, but was never used. the bottom was a House Sparrow's st with three eggs. This was about lf a mile from any farm buildings a small isolated grove in a native sture field. The Red-tails were later ated about a quarter of a mile ay with a late hatch.

On May 15, 1966, I noticed a Red-iled Hawk carrying twigs to this st nest again, so on June 26 I ecked and found three hawk's eggs. July 26 I came back again and the st was empty and tilted on a slope, t in the bottom was a House Sparw's nest and the female flew out ving three eggs. Had the Red-tails sented the House Sparrow's intrun and moved out each time or was just coincidental? In any case this ows that House Sparrows may move t at a considerable distance from rm buildings during the nesting ason.—*Lloyd Lohr*, Stettler, Alberta.

CANNIBALISM IN HAWKS

Several years ago while observing e developments of a Marsh Hawk's st I began to wonder about the gree of cannibalism among such rds under certain conditions.

Four eggs had been laid by the time came on the scene, and in a short me two eggs hatched. Shortly after is the female hawk disappeared and e feeding was carried on by the ale. The two unhatched eggs couldn't found, but this was not surprising food was scarce. The parent hawk ould sometimes be gone for several urs and return with only a small te, or sometimes he wouldn't have ything to offer. The difference in ze between the two young birds beme more noticeable, and on my next sit the smaller one was gone, eaten, believe, by his bigger brother. After a few more days, seeing that the male Marsh Hawk was no longer flying around, I made by last trip to the nest—the young hawk, about three weeks old, was dead. Fortunately, food is more plentiful most years.—*C. H. Shulver*, Woodrow.

CUMBERLAND DELTA DEVELOPMENT

Mrs. H. Newton and *Mrs. Harold Bray* of McLean have sent us a clipping from the *Western Producer* of Mark Inch's "Prairie Wool" column in which he quotes protests that he has received against the possible drainage of marshlands in the Cumberland Delta. Mrs. Newton and Mrs. Bray write: "Would it be possible for our Saskatchewan Natural History Society and Ducks Unlimited to get together and try to prevent the draining of this splendid marsh, as our waterfowl are facing increasing hazards. Even around here few water holes and grasslands are left."

DRAINAGE vs. WILDLIFE

I am very put out because the Government is giving farmers permission to drain the natural lakes in our district. We have a small lake not bigger than a quarter section just north of us that they are planning to drain. This lake is a resting place for hundreds of big white geese in the spring, that stay around for about two weeks, and a wonderful place for ducks to raise their families in the summer. When it is drained there will be nothing but a desert with not a bird in sight. Since its drainage only adds a few more acres of farmland, of doubtful quality, why can't a lake like this be preserved for a place of beauty? Do we have to go to B.C. to see water and trees? —*Mrs. B. Schwartz*, Melfort.

WILDLIFE DISASTER

The American owned tanker which crashed on the coast of Europe has released more than 100,000 tons of crude oil. The oil pollution resulting has destroyed entire bird populations and must surely affect the survival of fish species and other animals and plants as well.

Thousands of oil soaked birds have been gathered and are being hand washed. The birds must then be kept in captivity, perhaps for six months, till their natural oils are restored and they can swim and fly. Cost of this work is about $1500 a week and it will triple in a few weeks.

Roger Tory Peterson

Editor's note: The executive of the SNHS was moved by the April 12, 1967, "Sea Birds Appeal", part of which is quoted above, and has made a donation on behalf of the society. Individual members of the society may also send money to help in this disaster. Money may be sent to World Wildlife Fund, Suite 728, 910 Seventeenth Street N. W., Washington D.C. 20006 or may be sent to our Box 1121, Regina, to be used as the executive sees fit in this or other conservation projects.

GREAT AUK AND LABRADOR DUCK

Mr. A. O. Aschim, Box 1481, Prince Albert, in the March 1965 *Blue Jay*, was good enough to mention that the R.O.M. was soliciting funds with which to buy specimens of the extinct birds, the Great Auk and the Labrador Duck. The campaign was successful and we have purchased splendid specimens as reported in the University of Toronto, *Varsity Graduate*, Christmas 1965. The existence of these birds in Canada might be of interest to members of the S.N.H.S. The specimen of the Great Auk is the only one in any Canadian collection. There are two other Labrador Ducks in Canada, one in McGill and the other in Dalhousie University collections.—*Jim L. Baillie*, Department of Ornithology, Royal Ontario Museum, 1000 Queen's Park, Toronto, Ontario.

A BROWN THRASHER IN ENGLAND

Last Sunday [one Sunday befor Christmas, 1966] we saw a Brown Thrasher at Durlston Head and i would appear to be the first ever seen in Europe. Just outside the garden boundary here at Woodgreen we have seen a female Peregrine Falcon and a Great Grey Shrike. The latter has taken up residence in an area of hawthorn scrub and may well be around for most of the winter.

We have had one or two quite hard frosts so far but no snow yet. However, our bird table is doing grea business and among our regular visitors are Great, Blue, Marsh and Coa Tits, Robins, Dunnocks, Blackbirds Song Thrushes, Greenfinch, Grea Spotted Woodpecker, Starling, House Sparrow, Chaffinch. In our spinney we see Nuthatches, Bullfinches, Redpolls Tree Creepers, Green Woodpeckers and in summer Blackcaps, Chiffchaffs and Willow Warblers.

Poole Harbour already has its share of winter migrants: well over 10 Red-breasted Mergansers, good numbers of Mallard, Teal, Widgeon and Pintail, at least one Eared or Horned Grebe, and usual waders—Turnstone Bar-tailed Godwit and so on. Bes wishes for good birding in 1967.—*Mr and Mrs. Timothy Dixon*, England.

PYGMY SHREW

About the middle of January found a pygmy shrew in my kitchen cupboard. It had come up through hole where the plumbing entered th floor, leaving an opening too large fo the pipe. I took the shrew to schoo and the Principal decided to preserv it in alcohol to keep it for a stud specimen.—*Mrs. Mary E. Peterson* Shackleton.

INFORMATION WANTED

If you have sight or breedin records of the Red-headed Woodpecke in Manitoba please write to Her Copeland, A317 Furby St., Winnipe 1, Manitoba.

BURROWING OWL CATCHES INSECTS IN FLIGHT

On a warm August afternoon ugust 9, 1966) while driving along trail beside the Wood River, north McCord, I noticed two Burrowing wls on a mound about 50 yards disnt. Deciding to get a better look at em, I stopped the car and reached r my binoculars. But even as I did, e of the owls made a quick, short ght from the mound and then rerned, apparently to feed the other rd. About this time three other owls pped up from below ground. Judgg from their actions the group consted of four juveniles and an adult.

While I watched, the parent bird ade several sorties and almost inriably returned to the youngsters ith what appeared to be an insect in beak. On one or two occasions, the ult jumped off the mound and unced on an insect close by. I was epared for this method of catching ey, but had not expected to see a urrowing Owl capture insects in ght. However, according to Bent 1932) Burrowing Owls frequently tain moths, dragonflies and grassppers "on the wing", though most unting is done in the evening and at ght.—*J. R. Caldwell*, Saskatoon.

SASKATCHEWAN LAKE

It is with mixed feelings that I note e changes taking place above Gariner Dam. During late 1966 the water as held back and the reservoir was lling up at a rate of about two inches day. This caused flooding for about 0 miles up stream. All the islands ear the Herbert Ferry were suberged as were the groves along the anks. All wildlife had to seek higher round. Eventually we will have a ke 140 miles long, up to four miles ide, and with a shoreline of about 00 miles.

I have known the river since 1912. t originates with the mountain laciers and it has cut a deep gorge hrough this part of Saskatchewan. It has dangerous currents and I once wrote of it, in part:

The bane of the early homesteader
When it sliced his market road.
The watery grave of many a man
And many a horse and load.
So swiftly its silt, its sands, and its waters ran
That the Indians called it
SASK-ATCH-E-WAN.

During March and April, 1967, water has been released to lower the water in the reservoir by 15 feet. This gives more water at this time of year to Tobin Lake and the hydro electric plant at Squaw Rapids and provides more space in Saskatchewan Lake for the heavy runoff expected during the spring thaw. As the thick ice crumbled huge blocks of ice were held up in mid-air by the trees along the banks as is shown by the accompanying snapshot.—*Dave Santy*, Beechy.

INDIAN LEGEND

Recently I heard of an unusual strip of golden sand along the South Saskatchewan River near a spot where the Palliser expedition had made camp. This is where Sage Creek joins the river. It was said that there is an Indian legend about the golden sand. Can anyone tell me where I can learn more about this legend?—*Eva Moore*, Kelfield.

SKIDOO HUNTING

A new menace to wildlife has appeared on the Saskatchewan scene: motor toboggans. There are three in our vicinity, and on the weekends the teenagers race over the countryside, killing all wildlife they see. True, these vehicles are a lot of fun and have recreational value, but in too many cases they are operated by irresponsible people. I have written about this to the Highway Traffic Board. They were very sympathetic but pointed out that it is a "matter of local enforcement problem" and suggested that the acts of cruelty to wildlife should properly be drawn to the attention of the Department of Natural Resources. Accordingly, I do intend to visit our conservation officer, and I also want to bring this to the attention of the Saskatchewan Natural History Society.—*Reinhard F. Klatts,* Esk.

I was particularly impressed by an article written in the March issue of the *Blue Jay,* entitled "A New Menace to Wildlife" by R. D. Symons. . . . I would very much like to see the same one reproduced in two Peace River country newspapers if this could be arranged . . . both of these papers have quite an extensive area to cover and at the moment such an article on "skidoo hunting" would have quite a good impact.—*Robert C. Guest,* Edmonton.

BOW VALLEY NATURALISTS

With the help of Park naturalists we have organized a natural history organization here in the mountains. We have had enthusiastic response so far and I hope this will continue. Our president is Hubert Green. The vice-presidents are Bruce Gordon and myself. Ruth Wilson is the secretary and we have an active field trips committee.

I hope to go to the Saskatchewan Natural History Society summer meeting this year and meet again with the nice people I saw at Rocanville last year.—*Aileen Harmon,* Box 656, Banff, Alberta.

THE CALL OF THE GREAT SANDHILLS

From 1958 to 1960 I served the churches at Hazlet and Verlo, Saskatchewan, as a student minister. While there, my wife and I became fascinated with the Great Sandhills, much of which was owned and ranched by people of our congregations. Because of this association with the ranchers we were free to roam around on the various car trails in the Sandhills. We really came to enjoy our trips into this fascinating area, but always wished for more time to spend exploring it. We also felt it would be wonderful to get away from the car trails to some of the more remote corners of the Sandhills.

For our 1967 Centennial project we feel that we would like to do something we have always wanted to do. So my wife and I plan to spend eight or ten days of our summer holiday in August horseback riding all through the Great Sandhills. We shall be staying at the ranch of friends and shall ride out one day, camp overnight, and come back the next day by an alternate route. We shall likely make four or five trips in this manner and should thus be able to cover most of the Sandhills. We plan to visit Crane Lake and Bigstick Lake, and to make several trips to the west and north of the ranch.

As well as a holiday camping trip we plan to make a thorough study of the plants, animals, and birds of the Sandhills. Naturally, we shall make detailed notes on every item of natural history that we can. And we shall certainly be on the lookout for any Greater Prairie Chickens, as suggested in the last *Blue Jay* editorial. We are also excited about the possibility of seeing Kangaroo Rats. We were happy to learn that one of the field trips at the summer meeting will also be taken in this area. Although we cannot attend the meeting we shall be waiting eagerly to hear what people find there in June, and hoping that this will give us further ideas on what to look for.—*The Rev. S. C. Fowke,* Norway House, Manitoba.

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